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Chapter 1.

Education and physical culture

Physical passivity of a modern man – a challenge for physical education

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Key words: physical passivity, consumer civilization, developmental and health needs

Abstract

Common reception of post-modern mass culture and consumer civilization in Poland has its very dangerous, delayed, effect. Life based on this civilization's patterns does not help fulfill the physical activity and work needs, which are very important for young organism's health and mental-physical development. Observation of the realization of contemporary school aims, confirms that consumer patterns are followed. School physical education - the only education responsible for pupils' somatic development and health - despite growing number of hours in a week, fulfils its aims only partly. Physical passivity symptoms are present also here. That is why it is so important to notice negative aspects of physical passivity.

In the beginning of the nineties of the last century, Hillel Ruskin, writting about European physical education, said that in promoting physical activity and giving it the value of social norm, the syndrom of natural passivity of the human is opposing (Ruskin 1994). Today, after several years, one can most likely confirm that the passivity is an important and common element of our lifestyle.

In Poland, we tend to join the reasons for the expansion of the physical passivity with the socio-political transformations, and the dissemination of the consumer civilization, with the West mass culture patterns reception. The negative social consequences of mass culture patterns and consumer civilization were pointed out in the second half of the twentieth century by Bogdan Suchodolski (Suchodolski 1972) and Jan Szczepański (Szczepański 1981). They recognized the assistance in specific regulation of human needs and promoting the horizontal model of human development as help.

Szczepański's anthropological theory of the consumption divided the human needs to: the main and side needs, defending artificial social egalitarianism by rejecting the latter. It was not possible, in accordance to the theory of Karl

Popper „Historicism poverty", to transform society in the name of the then obligatory social engineering. Nostalgia for the possibility of implementing the side needs, hid the understanding of the risks arising from their mass execution.

Warnings of B. Suchodolski against consumer civilization had not the significant effect either. He wrote that „the situation of people (in this civilization) becomes complicated, and their attitude to life reveals the tensions and internal conflicts, the gap between intentions and achievements increases, feelings of frustration grow, work becomes boring and neutral, life seems to be treated as a garden of pleasure, but the possibility of fatigue overcomes the intensification of luck, alternately use of stimulants and sedatives reduces contact with reality (....) Despite this, life shines neon signs and attracts with the possibilities, for which you must pay the increased effort in the struggle for existence and rivalry of luxury" (Suchodolski 1972).

Passive mass culture trends in Poland are visible despite the pervasive unemployment. Moreover, one can notice, so called, „unemployed lifestyle"; (Kowalski L, Pleśniak R 2001). Their analysis shows that more and more often we don't want to, then we cannot be on the consumer market of work. This is very often associated with, non-recognised as the negative phenomenon, physical passivity and has consequences in the form of consumption on credit. Living on credit creates, as a consequence, personal and family dramas, when it appears that the labor market is ruthless. The fascination with mass consumption may be a transitional phenomenon. This at least what Kazimierz Obuchowski thinks (Obuchowski 1966), who, in his Psychology of human aspirations, stated that fascination with mass consumption is typical for the generations growing out of poorness.

While the fascination with consumption, at least in Poland, even for economic reasons will be mitigated, it is difficult to think similarily about the richer countries. Consumerism is based mainly on multiplication of needs, creation of „artificial needs", taking as an example the development of the United States. Europeans living in the United States clearly notice the horrifying power of conformity directing morality and mental life stronger, then the police power. This is a mad advertising technique. The fact is that the emergence of new needs is a condition for social progress (Kolakowski 2000), it is difficult indeed to distinguish the exact needs, and more, to establish a set of real human needs on a permanent basis, but this is not a reason not to distinguish between the needs completely.

Leszek Kolakowski, (Kolakowski 2002) opening the 60. Congress of Polish Surgeons in Warsaw, said that: „We are in phase of uncontrollable hunger. We might have enough wisdom to recognise that this is a disease, no one knows the cure though. If, however, we will not have enough wisdom, this may be a lethal disease." Consumption, which yet in time of Florian Znaniecki was the „sphere of privacy" Has now become an ideology. It is actually treated as a value in itself. The high level of luxury consumption is put almost at the head of the hierarchy of values (Melosik 1999). As Zygmunt Bauman writes, the spending of money is regarded as one of the most important responsibilities, and freedom is equated with

the freedom to consume (Bauman 1991). Consumerism takes over social life completely, it is a criterion of progress and success of individuals and societies. Young generations are brought up into consumer world. Theory of „real human needs"completely failed (Baudrillard 1976), therefore, the consumer society is not criticized (Kolakowski 2002).

Symptoms of post-modern consumer culture

American mass consumer culture patterns are visibly supported by European postmodern culture. Originator of the concept of „post-modernism", Z. Bauman writes that postmodern culture is a permanent carnival, colorful short-lasting fashions, excess of information, disintegration of human identity (Bauman 1991). Zbyszko Melosik supports Bauman (Melosik 1999), consumption as a way of life, the socjety of spectacle, advertising that changes human identity through the shaping of their requirements and the standardization of tastes.

Post-modern culture and consumerism are broadly characterized by hazardous to human health and the development phenomena. These are:

- the uncontrolled growth of technology and information media
- isolation of man from nature,
- diverse and significant decrease in physical activity.

Technology, for years, a symbol of progress, changes the reality of our time in technopol. Neil Postman writes that the idea of the humanity progress Has been replaced by the idea of technical progress. The technique becomes almost a god (Postman 1995). Fascinated by technical facilitation of life, we become uncritically hypokinetic, because technology is the symbol of a modern and fashionable consumption, and physical activity, on the contrary, we associate with the difficult access to consumer goods. The technique undoubtedly makes human life easier, but poses a serious threat to health and development. „Man – says Astrand't – just like the animals, was programmed to move – to work in the natural environment" [Skinner et al., Future Directions Exercise and Sports Science Research]. In parallel to the reduction of physical work by technical facilities, contemporary man is constantly attacked by the excess of information media. Media, tools of unnecessary and needed information, create, by their variety and ubiquity, the„civilization of shout and advertising"(Życiński 2000), and a large part of their product is "serach of spirituality for neurotics". Lost in the overload of information, advertisements and advice in all areas of life, coming from the media, we undergo an anxiety, fear and stress feelings.

Another worrying phenomenon is the isolation of man from the environment. U.S. doctors have found several years ago that environmental problems are only the beginning of evil, that is resulting from isolation from nature. „The essence of the current threats are not destroyed forests, poisoned water, but the disruption in the multi-faceted human psyche"- wrote I. Moltmann, and H.P. Santmire stated that „The American schizophrenia is the result of opposing a nature and technical civilization." A similar opininion was presented by

the professor of spatial planning and landscape architecture I. L. Mc Harg „Today the only place in town, in which a man and nature are in close harmony, is the cemetery" (Barbour 1979). Stanislaw Zięba (Zięba 1998) from Catholic University of Lublin said that ... the man has lost a sense of identity with nature, civilization trends put him away from the roots of his development – nature. Paul Hertz (Janowska K., Mucharski P.1999) defines the present times as the fear of nature times. Solution for man is, of course, at least partial return to nature. This comeback, however, is not so easy, because trials of socialisation to the nature are often realized by means specific to the technical culture and civilization. Józef Lipiec (Lipiec 1995) predicts that in the future we will be forced to combine physical and environmental culture in the direction of "natural culture", and even in the face of postmodern threats for the future "culture of life".

Isolation of life from nature is part of the broader phenomenon – antonimy between nature and culture, which extends itself along with the postmodern consumer civilization creating cause of many diseases. "Illness - Stanislaw Grochmal writes - is the result of human mistakes, is the result of misunderstanding of their role in nature, insufficient knowledge of their own body, its needs, including those carried out under a contact with nature. World of material reality is vast treasury of building materials for tissues and organs of our body and the source of energy, a condition for a constant biologoical transformation in the body system. Comprehensive studies of nature and its principles harmoniously unifying all living species, will allow the use of this knowledge to maintain and increase full health. We must not destroy the natural sources of life and break away from the common roots, which provide consistent coexistence. It is important for us to know the mechanisms that maintain a balance between the human body's biological processes and phenomena of nature surrounding it, and skillful use of its health features."(Grochmal 1987).

The impact of nature on the health has been described by Hippocrates four hundred years before Christ. The modern man often despite possessing this knowledge, being under the influence of civilization trends, deliberately isolates himself from nature. The reasons for this isolation is probably not only the closed interiors life style, in which a man creates the best possible for his wicked body conditions, such as constant, high temperature, lack of surprises in climate, etc., but above all, the possibility of being physically passive. Seating position of the body - a symbol of consumer lifestyle of modern man - is inseparable from a closed room. Physical activity, according to Napoleon Wolański (Wolański 1995), unites man with nature and it is today one of the few forms of contact between human and his environment, part of its niche in the natural and social environment.

The movement and immobility versus the development and human health

This strong negative evaluation, in terms of development and human health, of the technology spreading phenomena, media invasion and isolation from nature, is just a part of the dangers. The most dangerous phenomenon seems to be a substantial reduction in human physical activity.

"The movement is a biological need of animals and humans, it is the basis of elementary physical and mental health - Halina Szwarc wrote forty years ago. In organisms with no physical activity pathological processes begin, the organisms get ill and old quickly. This is a result of the muscles function that they perform in the metabolism of the entire system. The muscles' work and movement are not only the factors necessary to maintain the efficiency and fitness of adults, but also these are very important factors in the development of the growing organism. Growth and development is not a mechanical process that uses nutrition and assimilation. For proper growth, and right synthesis of living matter proccess, it is necessary that assimilation and disimilation proccesses are going one after another, animation and braking phases, work and recreation. These processes may not be correct in situation of lack of movement or limited activity "(Szwarc 1979).

This high rate of phisical activity is not left alone. Wiesław Romanowski and A. Eberhard (Romanowski, Eberhardt 1972) confirm it, writting that the movement will improve morphofunctionally tissues and organs. Immobility causes loss of active tissue and muscles, nerves, internal organs, reduces the flow of oxygen, slow down the metabolism. The lack of activity during the growth of organism causes its inhibition, discordant development of the body (posture defects), other consequences of psycho-physical disability. Negatively affects the developing skeleton. Immobility causes irreversible changes in the form of connective tissue excess, kalogen deposition and other deposits that cause degeneration of the bone-joint and internal organs. Lack of physical activity and physical work accelerates involution by reducing metabolism, increased excretion of calcium, phosphorus, potassium, nitrogen, sodium. There are signs of atrophy of tissues and organs, such as reducing the volume of the heart, a clear decline in physical capacity - a reduction of living standards and a maximum capacity of the lung ventilation. There is an increasing incidence of heart cramps after effort, even at rest, conditioned by a decrease in the volume of remorse heart, increases the time needed to return to the state prior to cardiac fatigue. This reduces the volume of body fluids-blood and hemoglobin, extracellular fluid.

According to Henryk Kuński (Kuński 1987), lack of movement hinders the rational use of food, promotes obesity and causes medical treatment more difficult, impair peripheral blood circulation, weakens the muscles and tendons, increases the risk of damage to the joint, decreasing resistance to the efforts of everyday life.

Wiesław Romanowski (Romanowski 1973), comparing the rates of heart size (comparison of heart weight to total body weight), has proved that the hearts of the people living passively is physically smaller, in relation to the hearts of people working intensely and physically active. Similarly to the hearts of animals living at large and closed to the terms of the human civilization. Active men less often reached for coronary artery disease, they are easier to produce compensatory circulation in the heart and and thus be more likely to exit from a heart attack, greater resistance to cancer, as moderate exercise increases the amount of immune proteins in the blood. Activity prevents nightmare of civilization: obesity and diabetes. „Motor liberation" – the voluntary submission to physical work or motion

in the form of their choice, frees a person from the mental tension, nervous reactions, apathy and mental fatigue. For a man who supports the present trends, according to Stanislaw Kozłowski (Kozlowski 1986) – a man sitting, overeaten and overly emotionally activated, biological motion is a necessity, both as a preventive or therapeutic.

Causes of physical passivity of the human

Causes of common physical passivity seem to be interesting for further consideration, with such an obvious, negative for the development and human health assessment. No excuse for this phenomenon is still intensified activity, in terms of creativity to cope with various difficulties of life, which take man power to such an extent that it lacked on the daily physical activity. It seems that one can talk about three reasons for widespread physical passivity.

Firstly – labor – the activity of movement ceased to be a vital need. The modern man livelihood, security and locomotion, secures only in small part by the work of their own muscles. Technique makes this for him. Work - the movement ceased to be instrumental value, necessary to life, the obvious day-to-day implementation. Physical activity has become an autotelic value, the need for a much higher level. In the hierarchy of needs of Abraham Maslow (Maslow 1990), with the lowest level of the biological-physiological (vital) needs, characteristic not only for humans but also for animals, relegated to the border of the higher levels. The needs of these levels are carried out fully in the face of emotional harmony and develop their own sense of personality. Contemporary physical activity is not a life need, it is conscious realisation of own, personality-developing human needs. It becomes, therefore, part of limited individuals' lives. More often it is present in human thought as a valuable service. Unfortunately, a man in his reflections is often looking for higher values, but in the everyday life implements the vital, hedonistic needs. More often, the real interest of the modern human physical activity as one of the first needs, is among those who luckily overcome the first heart attack. Andrzej Ziemilski (Ziemilski 1984) explains that this is not a symptom of a full internalisation of positive attitudes towards physical activity, rather it is a "fear of death".

Another reason for the physical passivity to enter today's life style should be ascribed to the broader commercialization of sport. Modern sport, for more than a hundred years in the life of the society, went through such a big change that in our eyes becomes a phenomenon far from physical activity for the whole population. Feat certified as more than human, supported financially, by multiple media and pharmacologically becomes a part of the selected heros, pursuing their passions at the cost of health and even life. The sport no longer motivates to general physical activity. Mostly becomes passive fun, releasing excessive emotions while sitting in the observation. The media have big part in creating such a great sport. This sport is part of consumer lifestyle. It is difficult to determine what kind of human needs such a sport helps to realize, though certainly it does not support the needs of development and human health circle, but rather as defined by

N. Postman (Postman 2002) from the circle of the phenomena of "amused to death". Negative assessment of contemporary sport, because of very low social value, negatively motivates for physical activity for development and health. Additional problems are: fashion for use of expensive devices, clothing and equipment, entering closed and expensive, specifically prepared and equipped premises and indicated a significant level of physical fitness and motor skills of „sporting-themselves" participants.

The third cause of "extension of the phenomenon of physical passivity" is in the offer of post-modern consumer civilization towards the human body. Jean Baudrillard (Baudrillard 1976) explicitly states that "... among the many symbols of consumption at the highest level the human body is situated", and Zbyszko Melosik (Melosik 1999) that the modern "man creates his identity by constructing a visual image of his body", but it does not mean that the somatic values gain particular importance. Zbigniew Krawczyk (Krawczyk 1998) observes that in the post-modern society among the somatic values our body becomes too instrumental, and in the wider social objectives – preferencje of the living values, and thus the depreciation of the symbolic (spiritual) values.

Contemporary culture puts a young man in the first place and therefore, no one wants to be old today - the Cracow doctor, A. Szczeklik says, and Z. Melosik adds that the condition for success, in nearly every area, is now an attractive body. Hence the question: "what kind of body it is fashionable to wear this season?". Instrumental treatment of the human body, means to put more interest in its external appearance (fashion), rather than efficiency and physical performance and health. Among the postmodern proposals of services for the body we can find more offers of the phenomena associated with artificial gold-plating the body (tattoos, piercing, bodybuilding diet combined with steroids, a miracle diet, plastic operations, some varieties of fitness) than the actual offers of assistance in a safe way to improve the efficiency and fitness and physical appearance of the human body. These offers are too difficult for the "convenient" modern man. It requires a strong will, and the most difficult thing is you can not be subject to periodic fashion. Despite these reservations a significant part of contemporary society (especially women, regardless of age) is expecting to improve their appearance, physical fitness and mental health, by the cosmetic, pharmaceutical, medical and psychotherapeutical services rather than by their own physical activity, not to mention the physical activity in contact with nature. All „modern" treatments do not require an everyday commitment and although they are expensive and sometimes painful, do not interrupt the blissful passivity, a symbol of postmodern comfort. Unfortunately, according to Tadeusz Łobożewicz (Łobożewicz 1988) this is "pseudocomfort satiety, heat and stillness, which is easy to get. This is an example of adaptation that degenerates your body. Healthy living is connected with taking hardening action and efforts, located in the area of discomfort." To like discomfort of effort, fatigue, work in sweat, means to change completely physically passive lifestyle, along with the expansion of postmodern consumption, at least in terms of preservation of the rhythm of physical activity per day, week and year.

Physical passivity as a life style element

Danuta Woitas-Ślubowska (1995), indicating a way of life, writes that „to characterize a way of life we tend to show the whole of human behavior, to fully describe, and lifestyle considerations draw attention to specific points, typical of the subject. The lifestyle determines a choice of behavior, while the ways of life equally includes fully determined behavior or even forced behavior." So the lifestyle will include a team of attitudes, behavior and philosophy of life of the individual or group. According to Barbara Woynarowska (Woynarowska, Mazur 2004) it depends on the conditions of life, environment, social, cultural, personal values, attitudes, knowledge and belief, life skills, decent economy, politics and organizational structure of the population. Lifestyle is the result of circumstances and choices. It is the choice of behavior from the possibilities. Choice of which scale is increased with the age of a young man, by the end of his life once again becoming more conditions dependent. Unfortunately, according to research of Radosław Muszkieta (1999) in Poland, up to 86% of people do not see a link between premature death and lifestyle. This confirms the need for a comprehensive work on building a healthy lifestyle, at least in the physical education of physically active lifestyles.

Preliminary analysis of physical activity in youth, as well as throughout the life of modern man (Charzewski 1997) informs us that the situation is dangerous. The spontaneous movement, fun, crawling of the youngest, still seems to be limited, because of cultural and hygienic reasons to the point where this becomes a widespread need for the use of Dennison's gymnastics, saving the child's development. In the kindergarten activity is limited, this results in deficiencies in coordination, and even in manual abilities of children. Integrated education, the first stage of education at the reformed Polish school, gives children, according to the will of parents, a substitute motion (Pańczyk 2004). Slightly better is in the second stage, but in middle school comes the time to "wild freedom", again with the agreement of parents, for the abandonment of physical activity. In the further years of school the situation improves slightly, except for girls who, in big scale, will be physically passive for the Rest of their lives. Only a small part of the adult population, particularly older people, condust recreation – usually this is activity in the garden and walking, occasionally marching, running, cycling or swimming.

On the other hand, calling the analysis of modern human behavior, those of choice and necessity, we come to the conclusion that the postmodern consumption actually created a whole range of seating behaviors in all spheres of life. Seated position is an intrinsic behavior, associated with many types of work, learning, entertainment, fun, personal and family ceremonies and environmental and social ceremonies, prayer, leisure, the rest, consumption of meals, different kinds of interpersonal interactions, travel, creative work etc. Seating, with the eyes directed into the monitor, steels so important sleep from us. The sleep is shortened and moved to the late night hours. This lifestyle is passed to children. Lifestyle of children, not only in terms of sitting posture and physical passivity, was never so

similar to the style of life of adults, as now. This leads to dangerous consequences. Already Ziemilski (Ziemilski 1984), looking at young people during their holidays, so assesses the external signs of physical laziness style, passivity. "The young people are physically weak ... . The long necks of girls look as if they were attached in a different place than they should be. Boys often walk tilt. Under the great weight? Suffering? Is it the attitude, moral choice? The real suffering? There are no internal needs to be in shape, agile, smooth. Their active leisure is to walk without purpose. Thay walk lazy, slowly, aimlessly. They walk without aim because their carers do so. They are walking and windowshopping, buying waffles and ice creams. They have no ex ample comming from the older generation. 30-year-old Pole has already a big belly, which shortly becomes impressively big. A short way to a heart attack."

According to Kozlowski (1986) this lifestyle evolves in the direction of dangerous diseases of civilization. On the other hand Leslaw Gapik, in the preface to Z. Melosik's book "Cialo i zdrowie w spoleczeństwie konsupmcji" (Melosik 1999), specifying the trendy contemporary lifestyles, writes that "most impatient (not to say-primitive) look after the easiest of entertainment - drugs, offered in more and more new varieties. They live short, but high.

More clever are those who are addicted to their own adrenaline. They push each other at risks: gambling, extreme sports, the interests of risky, life based on continuous danger , danger one step from death.

There are also some who want to live long, beautiful and happy. Therefore, they care about their health, educate themselves in this area, although their knowledge does not always come from trustworthy sources. At the same time take everything they can from the offer of contemporary material culture. They want to be beautiful, but go through all the pitfalls. They follow the way described by miracle-diet and anorexia, bodybuilding with steroids and plastic operations. They win the world by "eating" it – this is where their need for eternal youth, fast food, fast cars, fast life comes from.

Modern lifestyles as challenge for physical education

Priest Jan Twardowski, in an interview for „Olympic Magazine" said that, „.. anyone who appreciates the more effort in improving their own lives, and is opposed to the death is the Olympian" (Zuchora 2004).

Program to combat physical passivity and artificial stimulation with own adrenaline, thus forming a physically active, and at least healthier lifestyle, is an order of the time. Reformed Polish school and its, still alone and lost, physical education (Przewęda 1992), does not respond to the real needs of development and health of children. School is successfull only in verbal tasks for children and young people. Physical education is not well located in the school, there is lack of serious legitimacy of this subject. Split between biotechnical shaping of the current efficiency and skills, and humanistic education prospective - positive attitudes to physical life-long activity, too often tries to pursue verbally only the latter.

It seems necessary to fully understand the real needs of development and health of children, it is also necessary to focus the school's physical education in their implementation. Moreover, the realization of these requirements seems to be a mark of modernity of the current physical education and to be facilitating its legitimacy in an increasingly consumer school.

It seems that it is important to indicate the basic assumptions of the new methodology of physical education postmodern theory, of course, not usurping the right to claim the knowledge possession of how effectively to solve the complex problems. In our opinion, these are the following assumptions:

1.Optimizing the process of studying physical education.
2.Verification of its teleological grounds.
3.The unique instrumentation of axiological base.
4. Educating and training of physical education teacher.

Ad. 1.
The belief that the most important in studying is to explore the key technologies of the future work, because knowledge of technology turns student into a professional, do not stand up to scrutiny today. To make matters worse, it also favors some objects of study. Students' lifestyle, their spontaneous physical activity, as a basis for their subsequent patterns of behavior are thus less important. It is difficult to postulate a kind of natural formation of a man of physical culture, but its future maker should set the example, should be a model. Study based on own recreation and health behavior also makes it easier to identify with the profession. It is also good when the student, according to the functional pedentological orientation could be inspired by the health behavior of their teachers, their work, personality, system of values. University teachers should teach their students that effort gives a pleasure, by generating educational opportunities for such experiences. Hilgard said that attitude towards something means activity based on experience. It cannot be, as Raczek (1995) notices, that hypokinesis characterizes physical culture people more often than other socio-professional groups. Optimization of the studying process is also reducing the large disintegration of sciences of physical culture and the contradictory special interests like the ones in the theory and methodology of physical education.

Ad. 2
Postmodern teleology of physical education requires extensive and highly interdisciplinary reflection. Consumer lifestyle, each passing year, brings anti-health and anti-development experience. Among the priorities there are two groups. These are the objectives of comprehensive development and health, and objectives, the implementation of which, should serve healthy (reasonable) procreation. Growing at a rapid pace, various special needs of development and health of our students do not need strong justification here. Healthy future procreation, though, needs a closer look from physical education as one of its goals. Opinions that for

the awareness of physically active lifestyle you can wait until future involutional changes, are wrong. From the social point of view, preparing young organisms, physically and health for parental roles, is most important. Motherhood often physically passive young women, does not guarantee correct reproduction. The role of physical activity in this aspect is particularly important and it does not seem that it should be left in the area of free will behaviours of future, potential mothers.

Ad. 3
Technological progress, freedom and broadening prosperity gradually release the human from the exhausting effort of securing everyday life. Physical work is no longer the first row need. Movement - physical activity is the autothelic need, which is understood as a condition of health by few. In this situation, it seems, it is worth to make efforts in order to describe specific autothelic values of physical activity, contact with nature, etc. There is need for specific instrumentation of these values in the awareness of contemporary man as a consumer. The unique instrumentation of autothelic values of physical activity will bring them closer to pragmatic postmodern recipient.

Ad. 4
K. Zuchora (2009), following J. Pośpiech, writes in his book "The Teacher and values," that there is the need for new training programs for teachers of physical education focusing on the common physical activity, which favors building a foundation of health through proper education of children and adolescents. There is need to upbring and educate teachers of physical culture, teachers who are oriented more to the philosophy of physical culture than to the technology. Oriented more on motivating to physical activity than on work with the most successful ones. Oriented more on care and advise on health and fitness work than on the sports successes. A future teacher of physical culture should be characterized by a variety of competence and comprehensive work experience (Pańczyk, Warchol 2008).

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Video technology in didactic communication within ski education

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Key words: didactic communication, ski education, video technology

Abstract

This paper raises an important problem of application video technology in the practice of teaching skiing technique. The high level of didactic effectiveness of these measures is justified by the benefits of communication: an attractive format and the ability to use multiple treatments to enhance the effectiveness of teaching and learning. However, it seems that these values are not used sufficiently enough. The reasons may be both external and objective (the specificity of the winter environment, where the process of teaching skiing actually takes place), and subjective, resulting from the personal characteristics of skiing teachers. The aim of this research is to explore the opinions of skiing instructors about the use of video technology in teaching skiing techniques, the degree of its use, benefits and the obstacles encountered during implementation.

Introduction

The last century has brought humanitarian changes from industrial civilization to civilization of information. The economic system in Poland has changed completely over the past decades. Technological advances have also led to revolutionary changes in communications, especially the processing and dissemination of information. A revolution in applying new technologies in education has taken place over the last 70 years. Development of these technologies can be divided into several periods. The beginning was extensive research conducted during World War II by the U.S. Army, which resulted in development of didactic film (Wiesner 1988). Already in the 1980's, multimedia education was defined as the concept of learning-teaching using functionally selected traditional and modern didactic measures (multimedia) (Strykowski 1984).

Today, as claimed by Strykowski[1], it is the dominant paradigm of modern education (ibidem).

Among the various media technologies, the most basic is video technology. It has a very wide conceptual range. In colloquial language the concept of video technology is defined as everything associated with the technique of recording and replaying of picture and sound. In didactic sense it should be understood as visual communication, which is characterized by interaction between student and teacher through the media (Bednarek 2002). The most important advantage of using video technology is the ability to consolidate movement and realize presentation in time and place convenient to users (learners). The benefits of using video technology in education of motor activities are:

- improving communication between teacher and student, and between students,
- presentation of perfect execution of activities,
- opportunity to self-assess,
- possibility of identification, analysis and correction of errors made by the student,
- more attractive communication, which can increase the motivation to learn,
- opportunity to present situations not available in real time observation,
- orientation of perception process on important issues,
- opportunity to reduce the duration of the observed phenomena,
- application of multi-channel communication (ibidem).

Emotional admiration for the potential didactic effects accompanies each, new phase of interest about educational media. Some of the studies indicate an increase in teaching effectiveness by up to 40% (Strykowski 1977, 1984), however this author considered these results as exaggerated (1984, 1993). Low levels of implementation of these techniques to didactic practice wondered then and wonders now. Wiesner (1988) gave a partial answer, indicating the economic aspect as reason – the balance of costs borne by teacher who uses media.

Currently, this balance may be beneficial, because of the widespread availability of new didactic technologies at the school. The capabilities of entering new technologies in the open air, the swimming pool or even on the ski slopes, arise today. Nowak interviews conducted among well-known Polish athletes and their coaches (Małysz, Tajner i Blecharz, Skolimowska, Ziółkowski, Mauer, Cybulski, Kaczmarek, Zbrojewska) confirm the value of the widespread use of the computer and video technology in sport (Nowak 2002). Latest research conducted under the Kunysz[2] direction also confirms this state, which shows a positive

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1 Strykowski Wacław – professor of Adam Mickiewicz University in Poznan, theorists of didactic film, editor in chief of Neodidagmata.

2 Horeczy M. (2010) The popularity of video analysis in the ski and snowboard training and its real application in the opinion of the respondents , Thesis AWF Wrocław,

attitude of skiing teachers and students to video analysis. These studies also indicate the differences in the practical application of this technology in the group of ski coaches who train at sports level and skiing instructors who train at basic level (ibidem).

The purpose of this study is to recognize the opinion of skiing instructors about the effectiveness of video technology in teaching skiing and the level of its usage.

The following research questions were raised:

1. What is the level of video technology usage in teaching skiing?
2. What are the benefits of including video technology in teaching skiing in opinion of skiing teachers?
3. What barriers hinder the usage of video technology in teaching skiing?

Material and methods

The studies based on diagnostic survey method using a questionnaire. The questionnaire contained closed questions (alternative and disjunctive) and half-opened questions. This was an electronic survey. The carrier of the survey was a specifically designed website with a database. The questionnaire had an interactive character – selected questions were posed depending on previous answers. The collected data would help determine the extent, scope, level and intensity of the phenomenon – this allows the assessment of their effects and the causes, and ultimately to design a different solution (Apanowicz 2003).

Request to fill out the survey was posted via e-mail to 99 schools with A+B[3] and A[4] license of SITN PZN (Association of Ski Instructors and Trainers in Polish Ski Association). These schools represent the highest level of methodical and technical training in Poland. Information from 53 skiing instructors was received as a result of the survey. The survey was completed by 72 people, but 19 questionnaires were incomplete .

The operator of research were ski instructors with higher education (88 % of respondents). Among this group there were only 25% women. More than half of the respondents had an Instructor of SITN PZN degree, and 40 % of them had an Instructor Lecturer of SITN PZN degree. The smallest group of respondents (22%) were over 50 old, 37% was under 30 old, the rest of respondents (39 %) were in the range of 31 to 50 years . The average work experience as skiing teacher was 16.4 years.

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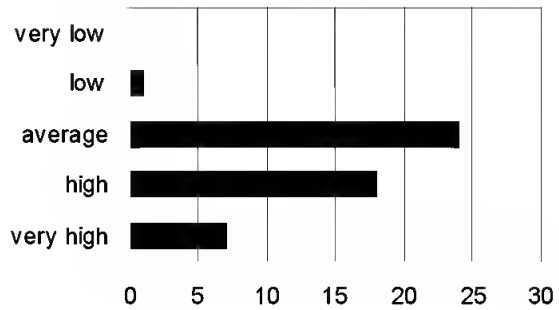
promoter Kunysz P.; Rzymkiewicz A. (2009) The level of motor images and video analysis and the effects of teaching snowboarding, Thesis AWF Wroclaw, promoter Kunysz P

[3] A+B license of SITN PZN entitles the school to conduct basic training and to organize and hold courses at lower levels of instructor PZN

[4] A license of SITN PZN entitles the school to conduct basic training only

Results

The answers of the respondents indicated that the use of video technology in teaching skiing is very popular (94% of respondents). Respondents were asked to assess their own knowledge - both technical and substantive - of video training ski techniques. The vast majority of instructors believe to be competent in the use of video techniques for ski training (84%). They are, in fact quite critical in assessing their state of knowledge at average level (48%) and slightly above average (36%). Only 2% of respondents admit that their state of knowledge on this issue is insufficient (see Graph 1).



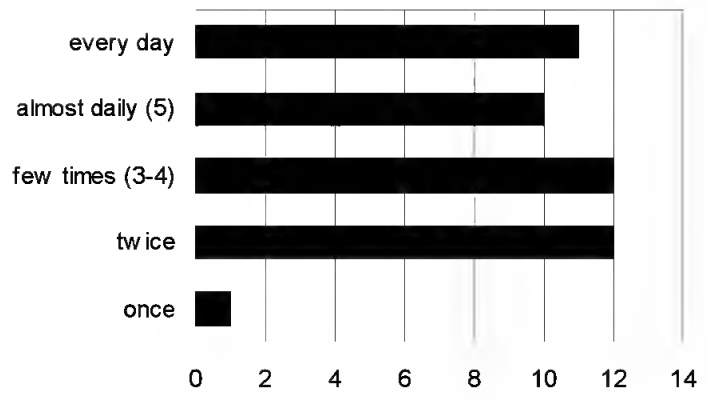
Graph 1. The level of knowledge on the use of video techniques in ski training among ski instructors based on their own self-assessment.

It can therefore be assumed that in this self-assessment instructors consider their knowledge as sufficient. Lack of the lowest ratings may be indicative that respondents believe they need to have the minimum skills for the use of video technology in skiing training. High self-assessment relates to the fact that the respondents instructors are mostly relatively young people, with graduates who operate efficiently in multimedia.

Concidering the didactics value of video techniques and a good level of knowledge determines the high frequency of using educational and training films during the weekly ski training (68% of respondents indicated a response often and very often).

However, many of the instructors (32%) chose the answer average and rarely average. It seems that the values are satisfactory, taking into account the ease of access to video equipment and well-known advantages of this technology. It seems to be unsatisfactory, taking into consideration ease of access to video equipment and well-known advantages of this technology.

`The use of video technology occurs at least twice during the weekly ski training, but some respondents even declare five-times use (Graph 2).

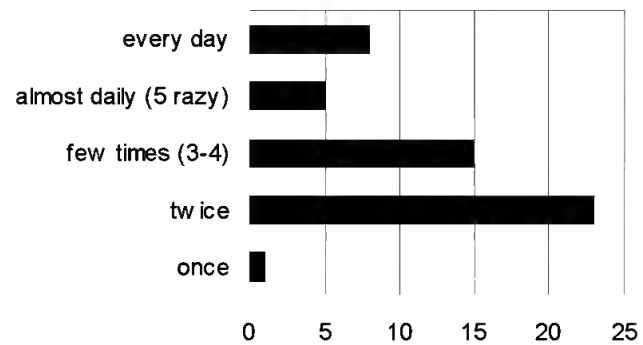


Graph 2. The frequency of using educational film training during the week of ski training.

The vast majority of respondents (82%) uses off-the-shelf educational and training films whilst teaching skiing. Among the most frequently presented during the ski training are on ski technique, films related to safety in the mountains and skiing history as well as sport elements, freeride and walk outside the designated routes. Very popular is move included to Program Nauczania SITN PZN (Stanisławski 2009).

As can be seen from the above, respondents were willing to use from ready-made materials, as they can easily be presented. But not always pre-made training/educational films reflect the individual nature of learning and the teaching of skiing . Short of half (41%) of respondents chose to produce their own videos.

The frequency of using the video analysis by skiing instructors shows Graph 3.



Graph 3. The frequency of using the video analysis by skiing teachers.

Using cameras to film students and analyze these videos often appears twice during the weekly ski training. All respondents declare to film their students and analyze recorded materials. The benefits of appropriate analysis of the student's skiing technique are extremely important. This is an example of

exteroceptive feedback. Less frequently, filming is used for a student memorial, as a souvenir, which is a pity, because the CD recording of student skiing can be an interesting gift, and is also an important part of the ski school marketing offers.

In the opinion of respondents video technology is most commonly used to improve teaching and skiing at the advanced level (e.g. professional instructor courses, sport training). This method is the least used with beginners, at the level of teaching basic techniques of skiing.

The main purpose of the use of video technology, according to respondents, is to optimize the learning process, subsequently to increase the attractiveness of the training (Table 1).

Table 1 The main purpose of the use of video technology in ski training is the opinions of the respondents (scale of 1 to 5, 1 - most important, 5 - least important).

	the average value
As a souvenir	3,4
Optimization of the learning process	1,4
Ski school promotion	2,8
Extension of the ski school offers	2,6
Increasing the attractiveness of training	2,4

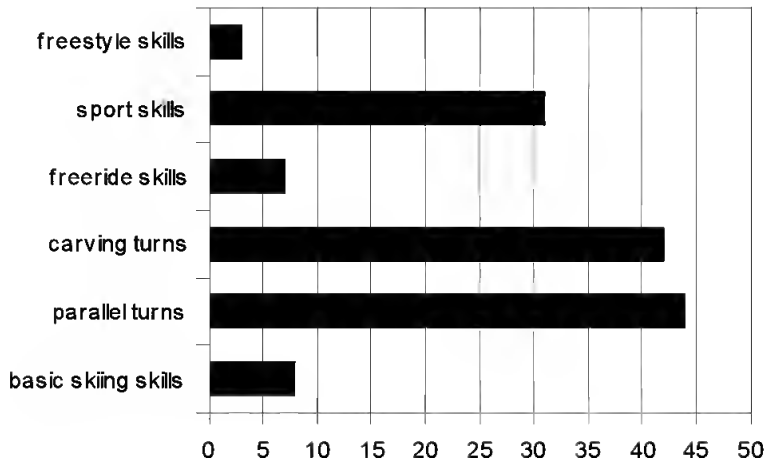
According to respondents in the process of teaching skiing video technique fulfills mainly a cognitive – education function, helping to improve the silhouette of a skier and a sequence in skiing techniques (Table 2).

Table 2 Elements of the skiing technique, to improve the video technique contributes most, in the opinion of the respondents (scale of 1 to 5, 1 - the most, 5 – the least).

	The average value
Silhouette of a skier	1,1
Sequence in skiing techniques	1,8
Ski turning radius	3,3
Dynamics and speed of performance	3,2

According to the specific skiing techniques video is used mostly for teaching parallel turns, carve turns and elements of sport skills. Figure 4 presents a detailed list.

Figure 4. Elements of Skiing Technique Presented with Video Technology.



Instructors were also asked to point out the obstacles in the application of video technology during the ski training. Most often mentioned were the unfavorable weather conditions – poor visibility, snow or rain, high frost or deposition of steam on the optics (72%) and the high cost of equipment (20%).

Discussion

Teaching skiing is a complex and extremely interesting issue. The aim of educational process, as intentional activity, is to call the learning of the learner (Okon 2003). Motor learning involves receiving sensory information from the environment on an unprecedented move, the mental processing of information, carrying out and reviewing the effectiveness of the performance (Czabanski 1980 p. 10).

The phenomena of learning and teaching motor activities are multipronged, multilevel and contain many subsystems regulate of human behavior (Czabański 2000, Wiesner 2005). The results of learning are a new for of behavior or a modification of previously acquired behaviors (Galloway 1988, Czabański 2000). Changes resulting from the learning occur in the thoughts, feelings, attitudes, values, perceptions, etc. They can no longer by justify maintaining only reactive behavior (Tomaszewski 1992, Czabański 2000). As a result, the activity of the learner can be independent of the teacher, what should then lead to the perception of information from learner and diagnosis of learning process. Ski instructors should be equally proper recipient information from the learner, as well as the sender. Wiesner studies have shown that the control and regulation of learning by the teacher brings to monitor activity, and then to correct and enhance the verbal communication (Wiesner 2005). To overcome the disruption in communications caused by the teacher - student - teacher video technology may be used.

Unfortunately, this issue was noticed by only a small number of respondents. The report shows that although the instructors are filming their students, but they do it about only two times during the week of training. What is the reason? Carrying out a report does not explain it. Probably it is determined by several reasons, including the economic aspect (including the cost of material used in video technology). Perhaps of importance may be the lack of adequate preparation (eg. poor knowledge of the biomechanics of skiing) and methodical (lack of knowledge of methods and tools used in the teaching of skiing). Responsibility on the teacher for the consequences of teaching involves monitoring the process of teaching, which involves the receipt of feedback by the student. Lack of feedback induces an increase in the number of errors and the deterioration of the implementation of the performance. Modifying behavior under the influence of feedback is regulated behavior (Tomaszewski 1976).

Specificity of learning and teaching of motor function refers to environmental differences, as well as learner's mental and physical background (Czabański 1980, 1998; Wiesner 1999). The communication process in the teaching and learning how to ski cannot be seen solely as communication of instructor with his students. There is also communication of student with himself, communication of student with social the environment and communication occurring among the students (Zatoń, Wiesner 2009). Motor dimension also includes communicating with the skiers natural environment (slope, snow, air, temperature), to communicate with sports equipment (skis, ski poles, snowboard), or the teaching tools. Skiing, due to sliding, variable slope configuration, speed and the specific arrangement of the body deviates from the everyday motor experiences of the natural forms of locomotion and motor coordination (Ziemilski 1977). All the typical skier movements, performed with joints immobilized, have no equivalent in the traditional, utilitarian forms of physical activity (ibid.). Specific natural and social environments as well as being different than everyday motor skills mean that the ski instructor does not work in situations of repetition. He often cannot predict what kind of task the student will put in front of him, what problem he will have to reslove. This assumption allows us to look in a completely different way at the process of teaching complex motor activities and the role of the teacher in this process (Zatoń, Wiesner 2009). These considerations assumes that the teacher has a significant impact on direct communication with students, but also affects the students communication with the environment while performing physical activities (Wiesner 2007). Teaching skiing is a process of communication. The concept of *communication* was introduced to the didactic to analyze more precisely the phenomena accompanying learning. The word *communication* means the transmission of thoughts, messages and information[5]. Efficient communication requires that the recipient interpret information message in accordance with the intentions of the sender. This can occur only in the use of common language

[5] Słownik wyrazów obcych, PWN 1995, s. 577-578.

information (code) and effective carrier containing information (Czabański 2000, Wiesner 2005). Such a carrier of information about the technique of skiing can be materials prepared by professional organizations. Instructors in the research indicate materials developed by SITN PZN concerning skiing technique, safety in the mountains, the history of skiing, sport technique and freeriding. Most popular is "Program Nauczania Narciarstwa Zjazdowego SITN PZN". It indicates the need of using media and multimedia in skiing education. Skiing teachers reviews indicate that educational materials in electronic form may facilitate communication (improve the communication process) and help in understanding the complex operations of motor activity (Bień, Niedziela 2009). Although they did not affect the effectiveness of teaching themselves however, when well-chosen and skillfully applied they can affect the results. While teaching, ski instructors use different methods, tools and teaching materials - including video technologies.

Such a huge role by the teacher of skiing should be pointed out. Educational technology, and especially the concept of multimedia education, can significantly improve the process of didactic communication. Educational technology is sometimes equated with technical teaching tools (multimedia) and didactic infrastructure (Bednarek 2006). Multimedia education is related to the concept of multilateral learning, but also with the universal education by John Amos Comenius (Okon 1987). At present, dimension of this concept seriously influences the emergence of technical teaching tools (multimedia.) Thanks to them we can know reality as it is. Values of multimedia education rely on the fact that it is multichannel, multi-sense and multilaterally teaching activating students. Transmission of the information, very rich, very distant in time and space, and generally unavailable in many cases direct observation, is so close thanks to the media – as "it is all on the screen" (Strykowski 2002).

According to the respondents they are willing to use ready-made materials, which can be very easily presented. Many people, however, admitted that they do not use video technology very often in their work despite its well known advantages. The development of video technology and increasingly common access to facilities for self-registration of sound and pictures and common access to equipment that enables playback of recorded and previously assembled materials: a camera, multimedia projector, DVD players, suitably equipped PCs to enable rapid transition to the certain moments (scenes) and play them any number of times. Today the film, as a teaching tool is taking on a new dimension. Technological progress has made the film easier to manipulate to the teaching process, often use, create, edit, view, from multiple devices (including those mobile: smartphone, ipod, handheld pc, netbook, etc...) Publication of the film on the Internet, its portability, ease of viewing (availability) acquires it multimedia features.

Popularization and universality of electronic tools for playing and recording video, the ability to create high-quality video (high resolution: the High Definition), the possibility of the use and processing of recorded material in various computer applications - gives additional arguments for the use of video

technique in motor teaching. All these factors should encourage ski teachers to use the video technology in their work.

According to the vast majority of the respondents use of video technique in ski training should become a compulsory element in the process of learning and teaching skiing.

Conclusions

- In the opinion of the respondents the level of implementation of video technology in teaching skiing is very high and basic video techniques are widely known and applied.
- Respondent instructors see the benefits of using video technology in teaching skiing. Especially they emphasize the mono direct aspect of communication by improving ski performance. A little less they emphasis the possibility of control (feedback information) and the adjustment of teaching in the communication process.
- Full use of video technology in teaching skiing encounters several important issues which arise from the variable and unfavorable external conditions. First of all should be mentioned bad visibility, snow or rain, frost or vapor deposition on the optics and the high cost of video equipment.

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Physical fitness in children with impaired vision

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Key words: physical fitness, blind, partially sighted, motoricity, test

Abstract

The aim of the study was to determine the level of physical fitness of people with vision impairments. This will make it possible to establish what is the extent of changes in individual abilities and, as a consequence, which new motor forms supporting motor development and eliminating motor limitations caused by a vision defect should be used in future in subsequent stages of development. It is well known that the vision analyser plays a great role in the human perception, including the perception and carrying out of movement. In case of its defect physical fitness and motoricity are significantly limited. In general it can be stated that the lack of vision results in a significant limitation of spontaneous motor reactions and the movement will be taking place over a longer period of time.

The assessment of physical fitness was carried out using a battery of tests adapted for technical possibilities of carrying them out – the participation of a guide who showed only the direction of movement – which did not affect the final results of tests. Individual tests were carried out on blind children and children with poor vision aged 6 to 15 years and on a group of healthy children of the same age. The tests were used to obtain a general and wide indicator of physical fitness of partially sighted and blind children.

The tests were carried out in a group of 145 children from four School and Education Centres for Blind Children in Poland and a reference group consisting of 320 primary school children from Poznań.

On the basis of the study it may be noted that the best developed motor properties in partially sighted people are agility and spine flexibility, and the least developed are reaction time, functional strength and endurance. In blind children the best developed property is reaction time and, depending on age and sex, functional strength, spine flexibility and endurance.

Introduction

The issues related to physical fitness in people with impaired vision are relatively seldom discussed. This is mainly a consequence of problems related to devising of an appropriate test which would in describe the level of physical fitness in a complementary way. Vision defects have been found to cause limitations and delays in the motor development to a significant extent (Adelson & Fraiberg, 1974; Gibson, 1979; Thelen, 1995; Gronmo, 2000; Brambring, 2001; 2006). This is reflected in physical development itself at various stages of life, manifested in delays in terms of getting up, sitting down, moving. The lack of vision indirectly results also in limitation of other functions, not included in the function defect, such as co-ordination, spine flexibility, speed, endurance, balance, strength (Czabański, 2000; Starosta, 2003; Osiński, 2003;; Raczek et al., 2003). It may be stated in general that the consequences of the lack or limitation of vision significantly affect a person's life activity (Longmuir & Bar-Or, 2000; Libermann & McHugh, 2001; Sit et al., 2002; Lieberman, 2002; Ponchilla, 2005).

In order to assess physical fitness and motoricity and to create on the basis of their results a concrete plan to support the revalidation process, appropriate tests for people with vision defects should be prepared. The main difficulty in devising new tests for this group of disabilities only is the variety of vision defects. The solution could be adaptation of available tests for people with correct vision. Previous studied were inconsistent in their tests, they considered various assumptions, and the results of studies were difficult to compare (Short et al, 1986; Lieberman & McHugh, 2001; Ray et al, 2005). Regardless of what procedure of study we adopt to assess the level of physical fitness or motor activity of people with defective vision we can monitor changes constantly, which allows for quick intervention in case of a lowering level of physical fitness, deteriorating motoricity, or the use of appropriate programme of rehabilitation exercises.

Thus, finding out in what parameters of motoricity and physical fitness changes take place is a starting point for the forecasting and planning of revalidation activities, or creating adaptation exercise activities taking into consideration the limitations of people with defective vision.

Method

The study participants were divided into three groups: two disabled groups, the blind (**B**) and the partially sighted (**PS**) and reference group (**RG**). Within the groups the participants were divided by age and sex. Only children who did not have any contraindications for physical exercises from ophtalmological point of view took part in the tests.

In the group of 145 participants with defective vision 95 were partially sighted and 50 blind. In the whole group there were more boys (**M**) – 86, than girls (**F**) – 59. Due to a small number of the studied population the children were divided into two age groups from 6 to 11 and from 11 to 15 years (Ermolaew, 1985).

In order to establish the level of studied properties elements of some physical fitness tests were used: Denisiuk's test (Denisiuk, 1975), Eurofit (Eurofit, 1993), Trześniowski's test (Drozdowski & Drozdowski, 1975), Cooper's test (Drabik, 1992), tapping (Gracz et al.,1984).

On the basis of the battery of tests a general picture was obtained which was a wide indicator of physical fitness of the blind and the partially sighted. In individual tests the following motor properties were tested: speed, spine flexibility, strength, and endurance. The set of motor properties was extended by additional motor techniques which have a significant effect on development of motoricity in people with defective sight organ, i.e. tapping and spatial orientation. Necessary changes were made in the above tests for people with correct vision in order to adapt them for the possibilities of the blind and the partially sighted (Ponchilla, 1995). The modifications related mainly to spatial orienting of the person performing an exercise in terms of small and large space and providing maximum safety during tests. Each test task was explained in detail in words and demonstrated in a tactile way on a person running the test or on the participant. A participant had two attempts in order to get familiarised with a given exercise.

The set of the following exercises was used to assess physical fitness of the blind and partially sighted:

1. TAPPING (reaction time) – the participant makes a maximum number of movements with a graver on a tapping device in 10 seconds. The participant is sitting on a chair, his or her hand bent in elbow joint is not resting on the table. The number of taps was noted.
2. THROW OF A BALL FROM BEHIND THE HEAD (strength) – the participant faces the direction of the throw with one foot in front of the other. The distance is assessed. Depending on the age (for given grades) balls of various weight are used: grade 1-3 a 1 kg medicine ball; grades 4-5 a 2 kg medicine ball; grades 6-8 a 3 kg medicine ball.
3. PASSING A BALL WITH A FOOT (agility) – the participant hits the ball with either leg towards the signal made by the tester from the distance of 7 metres. The deviation of the ball from a middle line of rolling to the right or to the left measured in metres and centimetres is a scale of error. The pass is made three times, the best result is recorded.
4. HANGING ON A BAR WITH BENT ARMS (functional strength) – the participant hangs on a gymnastic bar with arms bent so that his/her chin is above the bar. The hanging is performed from a platform. The test is finished when the participant's eyes are below level of the bar. The time of the hanging is measured.
5. A SHORT RUN (speed) – the participant starts the run from a high starting position. Depending on the age, various distance is used: grades 1-3 30 metres, grades 4-5 40 metres, grades 6-8 60 metres.
6. A LONG JUMP (explosive speed of lower limbs) – the tester guides the participant with his voice for the correct direction during the run-up as well as informs about the moment of take off. The take off zone is a white area 122 cm by

100 cm (according to the IBSA regulations). The participant has three attempts and the best results is recorded.
7. A FORWARD BEND (spine flexibility) – the participant sits on the floor, rests his/her feet on the footrest of a gymnastic bench and then performs a maximum forward bend. The bend is measured from the level of feet support on the bench. The bend below the level of the feet is described with positive values, and above with negative values. Each participant has three attempts, the best one is recorded.
8. COOPER'S TEST (endurance) – the participant's task is to cover the longest distance in 12 minutes. In grades 1-3 (taking into account the age range) the time for the run is 6 minutes. The distance covered is measured accurate to 1 metre.

The material was subject to statistical analysis using the following indicators:
- arithmetic mean,
- standard deviation,
- F Snedecor's analysis of variance (F)
- significance of differences with Student's test (t).

Results

REACTION TIME

The results presented in table 1 indicate that highly significant differences between the studied B, PS, RG groups in terms of the level of reaction time (tapping) was in each age group in girls, and only in the 6-11 group in boys. In the comparison of each pair of the studied groups of girls (aged 6-11 and 11-15 years) and boys (aged 6-11 years) it was noted that significant higher values of reaction time were in the RG group, and in the B and PS groups they do not differ significantly.

AGILITY

On the basis of the results in table 2 it can be said that significant difference between the studied groups in terms of agility (precision of passing a ball with a foot) was noted in the older age groups, both in girls and in boys. In the comparison of all pairs higher values of agility were only noted in girls (aged 11-15 years) and in boys (aged 11-15 years) in the B group. The RG and PS groups do not differ significantly.

STRENGTH

On the basis of the results in table 3 it can be stated that large differences in terms of strength (a throw of a ball from behind the head) was noted in each age group, both in boys and girls. In the comparison of all pairs, irrespective of the age, significantly higher level of the throw of a ball from behind the head was noted in the RG group. The B and PS groups did not differ significantly except for the boys in the age group 6-11 years.

FUNCTIONAL STRENGTH

On the basis of the analysis of results in table 4 it can be said that highly significant differences were noted only in boys, both in the older and in the younger age groups. In the comparison of the three groups with each other in boys,

irrespective of the age, a highly significant level of functional strength was noted (hanging on a bar with arms bent). The B and PS groups did not differ significantly. No significant differences were noted in either girl age group.

TABLE 1. Detailed description of the studied groups in terms of physical fitness. The results of tests relating to reaction time for all groups

SEX	AGE	STUDIED GROUP	N	TEST F	DETAILED COMPARISON
F	6 > 11	PS	15	1.21	
		B	13		
		RG	83		
	11 > 15	PS	22	4.17*	B-PS: 51.62**
		B	9		RG-PS: 12.73
		RG	78		RG-B: -38.89*
M	6 > 11	PS	21	1.96	
		B	17		
		RG	77		
	11 > 15	PS	37	9.78**	B-PS: 31.82**
		B	11		RG-PS: -9.03
		RG	72		RG-B: -40.85**

*$p < 0.05$ ** $p < 0.01$

EXPLOSIVE SPEED OF LOWER LIMBS

In the comparison of results in table 5 it can be noted that both in boys ands girls, irrespective of age there were large differences in the level of explosive speed of lower limbs (long jump). In the comparison of all pairs significant higher values irrespective of age were noted in almost all RG and PS groups.

SPEED

On the basis of comparison of results in table 6 it can be noted that highly significant differences were found in both sexes. In the comparison of all groups with each other significant differences between all pairs can be noted. Significantly highest level of values in speed (short run) was in the B group.

SPINE FLEXIBILITY

In the comparison of results in table 7 it can be noted that there are no significant differences in girls nor in boys, irrespective of age.

ENDURANCE

The results in table 8 indicate highly significant differences in the studied groups, both in boys and in girls. In the comparison of pairs of studied groups in

girls and in boys, irrespective of age, significantly higher values of endurance (Cooper's test) were noted in the RG group. A similar significant value of endurance was noted in boys aged 11-15 years in the B group. In other cases groups did not differ significantly.

TABLE 2. The results of tests relating to agility for all groups.
In this case the higher the mean value the "worse" the result.

SEX	AGE	STUDIED GROUP	N	TEST F	DETAILED COMPARISON
F	6 > 11	PS	15	5.41**	B-PS: 1.39
		B	13		RG-PS: 7.21**
		RG	83		RG-B: 5.82**
	11 > 15	PS	22	13.69**	B-PS: 0.83
		B	9		RG-PS: 9.95**
		RG	78		RG-B: 9.12**
M	6 > 11	PS	21	7.11**	B-PS: -1.54
		B	17		RG-PS: 6.25**
		RG	77		RG-B: 7.78**
	11 > 15	PS	37	0.80	
		B	11		
		RG	72		

*p < 0.05 **p < 0.01

TABLE 3. The results of tests relating to strength for all groups

SEX	AGE	STUDIED GROUP	N	TEST F	DETAILED COMPARISON
F	6 > 11	PS	15	9.76**	B-PS: -33.08
		B	13		RG-PS: 56.57*
		RG	83		RG-B: 89.64**
	11 > 15	PS	22	16.57**	B-PS:-63.64
		B	9		RG-PS: 82.77**
		RG	78		RG-B:146.41**
M	6 > 11	PS	21	7.76**	B-PS: -88.04
		B	17		RG-PS: 20.17
		RG	77		RG-B:108.21**
	11 > 15	PS	37	6.43**	B-PS: -53.17
		B	11		RG-PS: 62.82*
		RG	72		RG-B:115.98**

**p < 0.05 ** p < 0.01

TABLE 4. The results of test relating to functional strength for all groups

SEX	AGE	STUDIED GROUP	N	TEST F	DETAILED COMPARISON
F	6 > 11	PS	15	2.54	
		B	13		
		RG	83		
	11 > 15	PS	22	1.87	
		B	9		
		RG	78		
M	6 > 11	PS	21	9.92**	B-PS: 4.72
		B	17		RG-PS: 5.67*
		RG	77		RG-B: 10.39**
	11 > 15	PS	37	6.45**	B-PS:-3.39
		B	11		RG-PS: 7.96**
		RG	72		RG-B: 11.34**

*p < 0.05 ** p < 0.01

TABLE 5. The results of tests relating to explosive strength of lower limbs for all groups

SEX	AGE	STUDIED GROUP	N	TEST F	DETAILED COMPARISON
F	6 > 11	PS	15	17.80**	B-PS:-63.69*
		B	13		RG-PS: 45.93*
		RG	83		RG-B: 109.62
	11 > 15	PS	22	48.99**	B-PS:-138.74
		B	9		RG-PS: 40.60**
		RG	78		RG-B: 179.34**
M	6 > 11	PS	21	44.46**	B-PS:-102.10**
		B	17		RG-PS: 28.36*
		RG	77		RG-B: 130.46**
	11 > 15	PS	37	20.63**	B-PS:-124.47**
		B	11		RG-PS: 7.10
		RG	72		RG-B: 131.57**

*p < 0.05 ** p < 0.01

TABLE 6. The results of tests relating to speed for all groups

SEX	AGE	STUDIED GROUP	N	TEST F	DETAILED COMPARISON
F	6 > 11	PS	15	33.11**	B-PS: 4.45**
		B	13		RG-PS:-3.63**
		RG	83		RG-B:- 8.08**
	11 > 15	PS	22	21.34**	B-PS: 4.49**
		B	9		RG-PS:-1.64**
		RG	78		RG-B:-6.13**
M	6 > 11	PS	21	64.06**	B-PS: 5.28**
		B	17		RG-PS:-2.64**
		RG	77		RG-B:-7.93**
	11 > 15	PS	37	19.11**	B-PS: 2.12**
		B	11		RG-PS:-0.91**
		RG	72		RG-B:-3.04**

*p < 0.05 ** p < 0.01

TABLE 7. The results of tests relating to spine flexibility for all groups

SEX	AGE	STUDIED GROUP	N	TEST F	DETAILED COMPARISON
F	6 > 11	PS	15	0.43	
		B	13		
		RG	83		
	11 > 15	PS	22	0.08	
		B	9		
		RG	78		
M	6 > 11	PS	21	0.59	
		B	17		
		RG	77		
	11 > 15	PS	37	1.09	
		B	11		
		RG	72		

* $p < 0.05$ * *$p < 0.01$

TABLE 8. The results of tests relating to endurance for all groups

SEX	AGE	STUDIED GROUP	N	TEST F	DETAILED COMPARISON
F	6 > 11	PS	15	3.23*	B-PS:-37.36
		B	13		RG-PS: 244.32
		RG	83		RG-B: 281.69*
	11 > 15	PS	22	16.90**	B-PS: 51.95
		B	9		RG-PS: 418.59**
		RG	78		RG-B:366.64**
M	6 > 11	PS	21	4.09*	B-PS:-183.78
		B	17		RG-PS: 154.45
		RG	77		RG-B:338.24**
	11 > 15	PS	37	5.49**	B-PS:380.35**
		B	11		RG-PS: 70.35
		RG	72		RG-B:450.70**

*$p < 0.05$ ** $p < 0.01$

TABLE 9. Comparisons of physical fitness between the reference group and the blind and partially sighted groups

	PROPERTIES	BOYS				GIRLS			
		6 >11		11 >15		6 >11		11 >15	
		RG-PS	RG-B	RG-PS	RG-B	RG-PS	RG-B	RG-PS	RG-B
PHYSICAL FITNESS	REACTION TIME	** 6.25	** 7.78			** 7.21	* 5.82	** 9.95	** 9.12
	AGILITY				** -40.85				* -38.89
	STRENGTH		** 108.21	* 62.82	** 115.98	** 56.57	** 89.64	** 82.77	** 146.41
	FUNCTIONAL STRENGTH	* 5.67	** 10.39	** 7.96	** 11.34				
	EXPLOSIVE SPEED OF LOWER LIMBS	* 28.36	** 130.46		** 131.57	* 45.93	** 109.62	** 40.6	** 179.34
	SPEED	** -2.64	** -7.93	** -0.91	** -3.04	** -3.63	** -8.08	* -1.64	** -6.13
	SPINE FLEXIBILITY								
	ENDURANCE		** 338.24		** 450.7		* 281.69	** 418.59	** 366.64

*p < 0.05 ** p < 0.01

The analysis of group comparisons within individual properties indicates differences in a prevailing majority of groups. In six out of eight cases in boys and in five out of eight in girls, irrespective of age, minimum 50% of comparisons in each property have significant and very significant differences. On the basis of the above data it can be stated that the level of physical fitness of children with defective sight organ is lower compared to their contemporaries with correct vision.

TABLE 10. Comparisons of physical fitness between the blind and the partially sighted

PROPERTIES		BOYS		GIRLS	
		6 >11	11 >15	6 >11	11 >15
		B - PS	B - PS	B - PS	B - PS
PHYSICAL FITNESS	REACTION TIME				
	AGILITY		** 31.82		** 51.62
	STRENGTH	** -88.04			
	FUNCTIONAL STRENGTH				
	EXPLOSIVE SPEED OF LOWER LIMBS	** -102.1	** -124.47	* -63.69	** -137.74
	SPEED	** 5.28	** 2.12	** 4.45	** 4.49
	SPINE FLEXIBILITY				
	ENDURANCE		** -380.35		

*p < 0.05 ** p < 0.01

On the basis of the results and their comparison it can be stated that the group of partially sighted children performed better in the tests. However, in two out of eight studied properties, partially sighted children in all age groups, both girls and boys, had better results at the significant and highly significant level. In one case half of comparisons was varied at the level of 0.01. In the other two tests individual cases of differences at the level of 0.01 were noted irrespective of age and sex. In general it can be stated that the degree of vision defect had in majority of cases the effect on the level of performance in tests, but to a smaller extent than in comparison with reference group (RG).

The results of the tests presented in the study do not answer exhaustively the question what exercises would be best to devise in future the principles of motor revalidation for children with defective sight organ. As the results have theoretical, practical and methodological significance, I would like to present the conclusion for this research area:

1. The level of physical fitness in almost all blind and partially sighted boys and girls was lower than the level of physical fitness of children with correct vision.
2. Physical fitness of blind boys and girls is lower than in the same groups in partially sighted, however in more than half of the cases it did not show significant difference.
3. In terms of functional strength blind and partially sighted girls did not differ from their contemporaries with correct vision.
4. The tests did not confirm the differences in spine flexibility between the blind, partially sighted and those with correct vision.
5. In the test of agility no differences were noted between blind, partially sighted children and those with correct vision in the younger age groups of boys and girls.
6. Girls have better developed functional strength and spine flexibility and agulity. They had the lowest results in reaction time, explosive speed of lower limbs, speed, strength and endurance.
7. The level of physical fitness is equal to a larger extent between the blind and the partially sighted than between the partially sighted and those with correct vision.
8. The level of physical fitness is lowest in the blind, and the highest in children with correct vision.

Conclusions

The above discussion indicates that the degree of development of physical fitness is determined mainly by the ability to see, secondly by experience, and thirdly by compensation of senses. The results do not answer however how to level the differences between the groups and within the studied properties. In vision defects with various degree of vision the level of tests is not the same, which was noted in the blind and those with correct vision. These results are identical or very similar to the results of studies carried out by Zofia Sękowska (1980) or Wanda Poznecka (1990). They confirm that the greater the degree of vision impairment, the lower the level of physical fitness."

The model of tests describing the level of physical fitness presented in this study has showed that the best developed motor properties in partially sighted are agility, spine flexibility and the worst developed ones are reaction time, functional strength and endurance. In blind children the best developed are reaction time and, depending on the age and sex, functional strength, spine flexibility and endurance.

In general the group of blind children is most delayed in motor development. The profile of physical fitness presented above and the tests carried

out indicate concrete actions which should be implemented in the curricula of physical education. Creating a new and wider education programme in the context of physical fitness which is in line with school tendencies such as individualisation, self-education, humanisation and intellectualisation. It is also postulated that activities increasing physical fitness should be introduced already at the kindergarten stage and earlier. Therefore, it is important to approach parents of children with defective vision at the very beginning of development of their motoricity.

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Verbal communication of physical education teacher

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Key words: teacher, physical education, oral speech, communication, lesson.

Abstract

Verbal communication plays an important role in all professions in which social interaction takes place. The submitted contribution analyzed partial results from several years of research on verbal communication of a teacher in physical education at primary school in Czech Republic. Particular attention was paid to communication problems between teacher and student, especially in terms of expression and comprehension.

Introduction

It seems unquestionable that the quality of verbal communication is an intrinsic and one of the most important parts of professional competence of those who work in socially interactive professions. They include also teachers. This professional group is in constant contact with students, parents, colleagues – fellow teachers, school head teacher. Due to the nature of teacher's work, the quality and manifestations of verbal communication in all its aspects during physical education lessons are of particular significance. A teacher with university education is an educated professional in his or her field, and as such should correctly communicate with students, irrespective of whether he or she teaches mathematics, biology or physical education.

The profession of physical education teacher is often wrongly associated only with the level of motor fitness, health, knowledge, ethics etc.

The level of verbal statement has relatively rarely been discussed in scientific literature and usually has been in the background of scientific interests. In fact, most activities that a physical education teacher carries out, for example in terms of settlements, influencing or controlling students, starts and ends with speaking. Using speech a teacher motivates students, explains the subject of a lesson, gives praise etc. A verbal statement of a teacher goes in a certain direction, contains certain information and has a certain objective.

It should interest the students, be comprehensible, functional and effective

at the same time. The relations between the development of motor agility and the level of speaking in teachers were noted, among others, by Hammond and Warner (1996), Woods and Lockel (1982). Similarly, Zatoń (1995) writes about the essence of verbal message of a physical education teacher. Teacher's speech cannot be in whole replaced by any non-verbal means of communication. Thus a question can be asked whether a verbal message of a physical education teacher meets its expectations.

The current article presents selected conclusions from many years of studies of the aspects of verbal messages of physical education teachers in primary schools in the Czech Republic. Due to similar social and historic conditions of the Czech Republic and Poland, they may also be useful for teachers in Poland.

Frequency of messages

For students to understand what the teacher says, to follow the relations, the speed of teacher's talking should be optimal. How quickly does a physical education teacher talk? In the study carried out during 15 lessons of physical education in grades 3 to 6 of primary schools, the rate noted was 28 to 87 words per minute. The differences in terms of sex and age were not significant. Lobsiger (1984) established the rate of talking in teachers of so called scientific subjects (mathematics, biology etc.) at 2100 words, that is 47 words per minute. Thus, it can be stated that the frequency of uttering words by physical education teachers who took part in the study was high. It seems that many physical education teachers think that the more they say, the better. It is probably related to a constant tension of a teacher during a physical education lesson. It is related to responsibility for achieving the objective of the lesson, for students' safety, among other things, and at the same time the teacher must motivate and discipline students. The above forms of activity of a physical education teacher create conditions for a higher number of verbal messages compared to colloquial speech, which leads to some lowering of tension (Mares and Krivohlavy 1990). Attention should be paid however to negative aspects of frequency of uttered words. It leads to the lack of reaction from students to the tasks assigned to them, that is to disobedience. Students perceive the teacher's speech as a sound screen and do not pay attention to what the teacher says, also when it is something very important. This negative reality is reflected in results of teacher's educational work which are lower than expected.

The level of speech volume

In one of the studies carried out in the Czech Republic on 1115 students who filled in a questionnaire, one of the questions related to what the students like and dislike in physical education lessons. For 23% of students teacher's shouting ranked first as a dislike. The criticism of shouting of physical education teachers is presented in studies carried out by Siwiński (1989).

The shouting of physical education teacher, or a loud form of verbal communication, may be due to objective causes: a large area of the court or gym,

noise or students' talking, bad acoustics etc. (noise in the gymnastic hall may reach over 100 dB). The reason may also be the fact that more women than men run physical education lessons and they want to strengthen their authority by speaking more loudly. The students themselves are very noisy too, however shouting of a teacher from whom they expect understanding and kindness disturbs them. Therefore, it is important for a teacher to pay attention when to shout, when to speak and when to just watch. This will result in a better atmosphere at physical education lessons as well as better health of teacher's voice.

Verbal instructions

Instruction is the most frequently used form of verbal communication of teachers (Dobry et al. 1997). Our study indicates that they account for 43% of verbal communication of a physical education teacher and significantly prevails over motor instruction of the teacher. A physical education teacher uses instruction to explain and order performance of a new activity, e.g. *Run!*; *Sit down!* or as a verbal assistance, e.g. *and now forward*; or rhythmisation, e.g. *One-two.*

It is surprising that in communication with students the prevailing instruction is of ordering and dominating nature, e.g. *Do.. !, You will be... !.* We noted that for every instruction of integrative nature (*... We will now slowly bend down...*) there are three instructions of dominating nature. Taking into account an educational nature of a lesson, we consider these forms of message as very unfavourable, that do not create an appropriate and friendly atmosphere.

In the further analysis we noted that 55% of instruction was devoted to organisation of students and class, and only 45% was devoted to student education process. What does it mean? During a physical education lesson a teacher pays more attention to organisation of the lesson itself, than to teaching. A physical education lesson is much more demanding in its structure then other subjects, however the noted value is very high. The reason can be found in education of future teachers. There are more theoretical subjects than practical ones. No doubt increasing the number of teaching practice in schools under supervision of practising teachers would help beginner teachers to understand better and cope with problems related to lesson and student organisation.

Feedback

Student's activity during a physical education lesson is directly addressed by feedback. Teacher's feedback assesses and informs the student about his or her activity and may at the same time motivate him or her to further activity (Mareš, Křivohlavý 1990).

In its basic classification feedback is divided into positive and negative. The impact of positive and negative verbal feedback was established on the basis of results of a simple motor test. After positive feedback from teacher in students of grades 1 to 3 of primary school a statistically significant improvement of results was noted (compared to negative feedback). In students of grades 3 to 6 of primary school better results were achieved, but they were not statistically significant,

whereas in students of secondary school, no differences were noted between positive and negative results of feedback. It turns out that with age the relation between the student's performance during a physical education lesson and teacher's positive feedback decreases.

A student should not always be praised. Combined with negative feedback we think that most important in primary schools is paying attention to the content of feedback. We note two forms of verbal communication of teachers: implicit (*... wrong; not like this; this was not good...*) and explicit (*...your hands were not tense, you looked at your feet...*). The task of negative feedback is to draw student's attention to what was done incorrectly, giving advice on how to improve. From the point of view of education, in case of implicit feedback we believe that this is the least appropriate form of verbal communication to use during physical education lessons.

The appropriate solution would be combining negative feedback with so called partial agreement. By combining a sentence in the form: *"...Yes, but..."* a teacher gives a student to understand that the student's performance is not perfect, but he or she is on a good track to succeed.

Asking questions

Questions are also elements of verbal communication of physical education teachers. A question activates student's cognitive processes. If we understand physical education as education, we have to be interested in how this potential source is used during lessons. In the analysis of verbal communication of teacher during a physical education lesson we noted 0.34 question/minute. This means that a teacher has a minimum need of using questions in contacts with students. The questions which the teacher asked students are mainly focused on organisation, e.g.: *"How many times did you practice?"; "Who is standing opposite you?", "Who is your partner?"*. The teacher expects a single word answer to this kind of questions.

In this sphere there are also questions relating to disciplining students, e.g.: *"Who are you chasing now?"; "Should I throw you out?"; "How long should I wait?"*. These forms of message are not recommended, due to creating an unpleasant situation between teacher and student.

Only in the third place there are questions directly relating to teaching, e.g.: *"What have I said about the legs?", "Which step is the longest?", "Where have you put our hands?"*. Unfortunately, most teachers do not expect answers to the asked question, usually they are silent for a moment before answering the question themselves.

What is the final statement? Some teachers believe that a student should speak as little as possible during physical education lessons, because of physical fatigue or dust in the gymnastic hall. Other teachers claim that there is no need to ask questions to students during physical education lessons. Our position is contrary to that of physical education teachers. We believe that students should be

put in a position when they have to verbally express themselves, which in turn relates directly to asking questions by the teacher.

Words of foreign origin

In each language there are words of foreign origin which is only natural (Špačková, 2009). In the last decades, also in terms of physical education and sport, foreign words have appeared which designate sport competitions or disciplines, equipment, apparatus, and which mostly come from English. They appear in print, on television as well as used in verbal form by physical education teachers. In the study we asked students whether they understand foreign words used by the teacher. We distributed questionnaires with 28 English words from the area of physical education (aerobic, allstars, break, gem, offside, power play, timing etc.) to 80 students of grades 4 to 6 of primary schools. The students' task was to state whether they understand the word of not (an appropriate word had to be put in). Out of 28 words presented to students they understood on average 10 words. More than 50% of students understood correctly less than 6 words. This results is a warning, as it indicates how easy a misunderstanding between teacher and student can arise. A teacher who uses foreign words must realise that not every student knows what the meaning of these words is. A student is too embarrassed to admit to not knowing these words and thus a communication barrier appears. Arising problems lead to a question whether to use foreign words, but if such a need arises, no doubt these words have to be explained and then the teacher has to check whether their meaning is understood.

Conclusion

We are aware that from the point of view of methodology the presented results should not be generalise, however from a practical point of view they are of certain value. The results of the study indicate that during physical education lesson a teacher pays attention to many things, whereas verbal communication is not one of the most important ones. One may agree that the atmosphere during physical education lessons is very different from the one during lessons of other subjects. This is probably the reason for the lack of will or laziness in verbal communication of the teacher. Students deserve a teacher who is an example of correct verbal communication during a lesson. For teachers who are just starting their adventure with physical education lessons we would recommend studying renaissance rhetoric already during their university course. Only in this way can all educational effects of physical education be used to achieve useful values in student's life.

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Cycling tourism as an attractive form of a school offer of physical education

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Key words: physical activity, school tourism, cycling tourism, New Syllabus

Abstract

The subject of this thesis is to present some concepts connected with an outdoor activity of young Poles. We focus here on a school tourism (cycling), which, according to the New Syllabus introduced in 2008, can be practiced in a scope of an offer of activities chosen from the curriculum of Physical Education. It appeared to be interesting to research what purpose, in a context of the contemporary times and reality, a deliberate tourist and recreational activity (with a use of a bike) can and should serve for an educational process of teenagers in the aspect of a widely viewed physical activity. The main aim of this thesis is an attempt to reveal the meaning of a cycling tourism – its possibilities to affect teenagers and moreover the prospects to become an attractive offer of activities chosen from the curriculum of Physical Education. Apart from the above aspects, it appeared interesting to research the opinions of students and teachers on some selected conditions of their participation in a school cycling tourism. Due to its numerous advantages this activity should become interesting for a contemporary school and its teachers. It is also necessary to notice some positive social, recreational and health effects which an active tourism causes. For teenagers, participation in this type of activity provides not only a possibility to gain some cognitive experience, esthetic sensations that minimize their tiredness of learning at school, the monotony of an everyday problems and tasks and at the same time this activity provides them with better fitness, good health, relaxation and mental rest. It also influences teenagers hygienic habits, teaches them how to create their resistance and find a better balance between learning, work and rest, moreover, how to make an effective use of their free time, makes them ready to cooperate with the others and take a responsibility for themselves. A cycling tourism, in the opinion of both students and teachers, can be regarded as an attractive form of activities chosen from the curriculum of Physical Education and an activity which makes a school tourist offer more attractive.

Introduction

Over the time of evolution a human system has accustomed to an intensive physical activity. however, the civilization changes, which occur in the contemporary world, minimize it. This problem becomes essential especially in a reference to a young generation whose physical activity is slight in a relation to their developing systems. It is generally known that a shortage of movement can be a cause of many disorders and an increased risk of diseases (Kozłowska, Nazar 1999, Astrand 2000, Cobrin and associates 2007). The didactic process carried out in a contemporary Polish school, based on a class-lesson system, connected with a sitting position of a body for a couple of hours a day, too long and onerous work and stressful duties resulting from learning, along with a lack of family patterns of spending leisure time together in an active way. Moreover, preferred passive leisure activities such as resting in front of TV or a computer are the elements which picture the lifestyles of a vast majority of the young Poles (Rowland 1990, Drabik 1995, Woynarowska and associates 1995, Woynarowska 1996, Falkowska 1997).

An effective antidote to this state of matter can be a deliberate physical activity directed to a regeneration of both physical and mental strengths. It can be undertaken during the lessons of P.E. as well as a form of out of school activities or other leisure activities. Unfortunately, in case of the Polish society a need for such an activity done regularly too often remains only in a sphere of declarations. According to Maszczak people are not sufficiently aware of such a need and it is still not common enough. Unfortunately, only a group people who are better off and educated reveal a care about their bodies and a rational shaping them (Maszczak T., 2000). The results of many nationwide researches prove that only a low percent of adult Poles actively participate in a widely understood physical culture (Charzewski 1997, Ostrowska 1999, Haliccy 2002). The physical activity of children and teenagers also remains on a low level (Tauber 1996, Siwiński 1997, Umiastowska 1998, Woynarowska, Mazur 2000, Bronikowski 2003, Cabak, Woynarowska 2004, Mynarski and associates 2007).Taking into consideration the facts mentioned above and how poorly Polish schools provide their students with a scope of physical skills and their marginal way of treating different forms of a physical activity defined as sports of a whole life, it seems to be justified to search for solutions to this problem by specialists from different walks of life, including those who are responsible for the Polish system of education.

There are many possibilities in a didactic and educational work of school to educate students in the matter of a deliberate physical activity, among other methods it can be done by a properly conducted school tourism. The content of tourism enriched by the elements of touring and physical recreation, which both taking advantage of various forms of acting in a natural and cultural environments, can prepare a young man to practice active tourism at elder age and in a social dimension (Janowski 2003). Tourism and touring belong to these spheres which in reference to a young person pay the following functions: informative and cognitive, recreational and health, ideological and social education, political and propaganda

purposes, cultural and esthetic development, respect and protection of a natural environment as well as economical ones, which provide a young generation with an enormous creative potential (Denek, 1997).

Until the present time in very many Polish schools the realization of tourist programmers has not fulfilled the potential possibilities in this field. The concepts connected with a tourist activity are frequently paid little attention to. The interest in tourism in reference to its advantage for the students depends on many factors, such as a school tradition, abilities and dedication of teachers and students' willingness and possibilities, especially those financial on the part of their parents. Some of the schools limited their tourist activities only to those which were obligatory and resulted from valid legal regulations but in other schools teachers organized excursions in forms of traditional class outings as well as those called integrational outings. In some cases there were offers of tourist and recreational events – summer and winter camps. Generally, however, in the last years it has been possible to observe the minimalization of a school tourist activity, especially in case of this one included in a qualified and specialized tourism. Due to a responsibility taken during such outings, teacher were not willing to participate in outings to the mountains or some specialized events, for example cycling. It took place although it is a task for school and teachers, especially those of P.E., to equip students with some proper skills – abilities, knowledge and information which are later put in practice when it comes to the area of a physical culture and "sports for everyone" Education properly directed to active forms of tourism and recreation with positive patterns should teach how to make aware choices and take actions, giving up automatic habits and stereotypes. It is especially important to discover, arouse and orient a young person's needs in the area of their whole life physical activity. What students learn while being at school in the aspect of tourism and "sports of whole life", they will be able to improve later, for example, during holidays spent with their peers or parents during a family rest.

Tremendous positive changes are provided by a New Syllabus which was introduced on 23 December 2008 and whose authors placing a school tourism among four proposed obligatory activities of P.E. from which a student can choose, created better conditions to carry out these aspects at school. For the activities to choose from they allocated : 2 out of 4 obligatory hours (II and III stage of education, covering IV-V grades of a primary school and I-III grades of a junior secondary school) and 2 out of 3 obligatory hours (IV stage, covering senior secondary schools) of P.E. (the Regulations of the Minister of National Education of 23 December 2008). In case of tourism, to overcome potential obstacles, they provided a possibility to join a few hours in a one raw of classes, (provided that only classes covering not more than four weeks are joined) (the Regulations of the Minister of National Education of 19 August 2009). Therefore at a time for one form of a tourist activities you can have 8 hours (for a said group of students), which is essential for a purpose of a realization of a widely understood tourist activity, otherwise it would be necessary to resign from some aspects as it could be impossible to realize them during regular lessons). Not all the activities have to be

joined lessons, during those singular lessons carried out during a week, the students can be prepared to a selected form of tourism or later in case of bad weather, teachers can make students familiar with various aspects of planned outings including cycling tours. According to the New Syllabus, it is recommended that during some stationary meetings, students should gain knowledge and skills which they will use in practice. It can be, for example, operating a compass, reading and interpreting a tourist map, processing some touring information and different curiosities about visited places and buildings including those regarded as tourist attractions along a covered route. They should also acquire some skills connected with preparing and operating tourist equipment, etc.

Depending on possibilities and needs, a tourist activity offered in the New Syllabus, in the scope of school work can cover the following forms:

- tourist and touring trips,
- trips of an active and qualified tourism, for example, connected with scoring some points of a Mountain Tourism Badge – canoe, sailing, skiing, biking or hiking excursions (for "the checked" participants)
- events of active and qualified tourism and touring, for example hiking, biking and canoeing rallies, sailing, outdoor games (playing hare and hounds, outdoor quizzes),
  marches and runs, picnics and rallies, (participants as above) (Przysiężna, 2010).

Thesis objectives

The subject of this thesis is to present the concepts closely connected with a tourist activity of a young generation on the example of different forms of cycling tourism, which can be carried out in the scope of a offer of activities to choose from the school lessons of P.E. In reference to the present reality it seems interesting to learn what a deliberate tourist and recreational activity (forms of cycling tourism) can and should do for the education of teenagers in teaching them physical culture. The main objective of this thesis is an attempt to reveal the meaning of a cycling tourism- its possibilities to affect teenagers, but also prospects to qualify it as an attractive form in a school offer of activities to choose from P.E. Apart from the aspects mentioned above it appears interesting to research the opinions of both students and teachers on the subject of selected conditions of their participation in a school tourism – forms of active tourism with a use of a bike. We also undertook an attempt to answer the following questions:

1. What is a subjective assessment of advantages resulting from a participation in different forms of cycling tourism in the respect of opinions presented by students and teachers.
2. What obstacles, according to the surveyed, hamper their participation in an active tourism with a use of a bike.
3. What forms of a school tourism are the most frequently and preferably applied in didactic and educational work of school.

Material and research method

To gather an empirical material, a method of a diagnostic survey was applied. It was done by means of a questionnaire and an interview. The research was conducted in 2010. It covered chosen at random 100 students of junior secondary schools and 100 teachers working in different types of schools of the Opole province. In the schools attended by the surveyed students as well as in those where the teachers were employed, the elements of cycling tourism were carried out at a lower or higher rate. In this thesis a great experience of its author was used, the experience that she gained due to several years of working as an organizer of the cycling events for the students of the Faculty of Physical Education and Physiotherapy at the Opole University of Technology – the future teachers, organizers and driving forces of different forms of leisure activities.

Research results and discussion

When it comes to the forms of tourism conducted at schools, not always, but it happens that to a lower or higher degree, a tourist activity with a use of a bike, which is the first link of a widely understood cycling tourism, takes its place. The positive social effects and an attractive recreation and at the same time a technically simple form of an active leisure activity are better and better perceived. It causes that the outdoor activities with a use of a bike should become interesting for everyone who can influence the educational process of children and teenagers as well as work of schools and teachers. The forms of a cycling tourism bringing numerous benefits for students are simultaneously able to meet all the tasks given to schools in the scope of an active school tourism and presented in the New Syllabus. According to the recommendations of the New Syllabus, the new curriculum contents in tourism conducted during the lessons of P.E. should enable students to:

- learn, first of all, as much as possible about their region, its natural environment, tradition, history, culture and monuments,
- confront and verify the knowledge gained in a traditional class-lesson system, including knowledge acquired in other subjects, with the reality (practical activities),
- improve or retain their fitness by an increased physical activity during hiking, cycling
  excursions or canoe rallies (it will not be achieved if during a tourist event students only visit interesting places),
- acquire the behaviour respecting the rules of the natural environment and the abilities
  to use its resources due to the outdoor activities,
- shape their characters, develop self-assessment (undertake activities in a different
  environment making use of their experience and knowledge as well as skills gained at
  school),

- learn skills of a proper leisure time management, (satisfy their different needs, and
  those cognitive ones, first of all) (Przysiężna, 2010).

It has been assumed that in a didactic and educational process and at work with teenagers, the foundations are the educational tasks which consist in shaping their personalities and preparing them for a social life. According to Przeclawski, the final educational effect is decided by the factors concerning both a tourist themselves as the value of a visited place. (Przeclawski, 1973). While bringing the arguments for the benefits of introducing a cycling tourism to the content of a tourist activity to choose from P.E., it is necessary to notice that during practicing this form numerous human characteristics are shaped such as resourcefulness, self-reliance and perseverance. Participation in a cycling excursion contributes to learning a sense of direction and a quick reaction to situations which can require an instant decision and action. When the participants cover the stages of a cycling route, especially in case of those advanced forms of tourism done on a difficult terrain and hard weather conditions, they learn how to deal with difficulties and obstacles, shape their strong wills and personal courage (Szwichtenberg, 2000). It happens quite frequently that the other person can be very helpful then cooperation is advisable. During the cycling events, for example, rallies, only by means of participants' integration and cooperation it is possible to complete a said task. A team spirit is necessary and it results in positive relations in a group. The accompanying positive atmosphere is helpful to start and strengthen long-lasting human relationships. Taking care about group members, especially those weakest ones, gives a sense of safety. In this context different forms of a tourist activity with a use of a bike can fulfill an important role – to socialize teenagers (Łobożewicz, 1997).

A cycling tourism can also become a mean of learning reality. Teenagers' need to discover social, cultural, historical or natural realities is defined as a cognitive curiosity. It consists in a possibility of getting in touch with a surrounding reality – in ' a direct contact with the world". While carrying out a programme of a tourist activity with a use of a bike, participants have a chance to perceive and confront an environment, which helps them acquire and understand defined educational contents and experiencing them. The activities including the aspects of touring, e.g. preparing a list of interesting places to visit, or ecology, e.g. preparing a list of concepts connected with an environmental protection of a chosen region –constitute a new source of knowledge for the students, a factor which deepens this knowledge as well as a way to consolidate the acquired information and assessment of the rightness of some theories in practice, which is the basis of creating some social opinions, beliefs, attitudes and enables students to establish and follow said criteria of assessing the facts, phenomena and processes of natural, social, cultural and technical character. (Denek, 2000).

A cycling tourism in each form completes its task in a process of health education of teenagers, it includes shaping a rational pattern of resting after learning and work, choosing proper habits of spending their spare time, taking care

of their fitness, strengthening their systems. The fact that they spend their time in a biologically valuable environment, such as woods, mountains, bodies of water, the sun and fresh air and in changing and various areas, influences not only their fitness and well being but also improves their mental condition and their general biological development (Łobożewicz, 1993). It is generally known that the main part of riding a bike is movement. As it happens in a natural environment, it especially influences the health of participants, who covering some distances undertake a physical effort of a certain intensity (Kozlowski,2003). By means of it the participants shape their fitness and stamina, strengthen muscles, improve lung ventilation, lose some weight (Pańczyk, 1996). It happens that they are not so aware how big work they do and how tired they can be because these symptoms are hindered by their emotions connected with the tasks they do. Quite often changes of weather and a climate provide them with opportunities to harden their systems and easily adapt to changing conditions. Clean, unpolluted areas of woods, mountains, water and the sun light are taken here as the source of a healthy edification (Łobożewicz, Kogut, 1999).

A mental factor is stressed in conducting cycling tourism activities. A typical characteristic of a young person is not a completely shaped personality, which reveals in some cases in a form of egocentrism, egoism, a poorly developed sense of self-criticism, a lack of abilities to overcome some obstacles and sometimes a scare persistence in achieving goals as well asa lack of independence. At the same time it is easy to notice a desire to succeed and as a young person cannot overcome it, they fall for neurosis or some other mental disorders can appear because of which a young person can turn to bad habits and addictions. A close contact with nature during some tourist activities can make it easy to regain a mental balance distorted by some stressful situations, frustrations or depressions (Gracz, Sankowski, 2001).

Moreover, a tourist activity (cycling) is strictly connected with nature and visiting interesting corners of a country, providing its participants not only with knowledge but also with some pleasure and impressions of an esthetic character. A great advantage of a bike is possibility to reach the most inaccessible places, the cycling outing can be connected with learning a technique of riding on a terrain, which can make the activities more attractive for the students (Łobożewicz, 1996).

Cycling can and even should teach a safe way of practicing tourism with a respect for a natural environment, which is connected with a knowledge of the ecological rules and environmental protection. Meaningful for the participants' safety is also their knowledge and skills regarding a Highway Code and a sense of a limited trust to other traffic participants. Unfortunately, in Poland there is still a lot to do in the sphere of proper conditions to practice cycling, e.g. some shortcomings connected with cycling paths, which could dramatically improve the cyclists safety. Because of their specific character the activities performed with a use of a bike create an inner discipline, responsibility, reflex, perceptiveness, rules of cooperation with other cyclists drivers and pedestrians.

The most essential advantages have just been quoted above – we mean those of educational, cognitive, health and emotional character and connected with practicing a cycling tourism by teenagers. They were also confronted with the surveys carried out in the Opole province in two groups chose at random: 100 students of a junior secondary school and 100 teachers employing in schools of different type. The results gained from our research regarding the advantages presented by the respondents and completing the tasks resulting from a school cycling tourism proved the theoretical assumptions, although the respondents depending on a surveyed group declared for some other benefits. The students give a priority to a possibility of reducing a stress, good time in a company of their peers (80%) and next they pointed at an opportunity to check their fitness and stamina (60%) and an ability to cooperate in a team and technique of riding a bike (equally 50% each group). On the other hand teachers, first of all, stressed the educational elements – shaping characters of young people and their organizing skills (90%), further a cognitive factor – a better acquisition of knowledge in practice (60%) and health ones – hardening of a system and a possibility to release an excessive energy (equally 50% each group).

In the Polish reality not meaningless are the financial aspects connected with organizing a tourist event. For many participants they often turn out to be an essential obstacle in getting to know the world. It happens that parents cannot afford to pay for children's participation in some school events. In case of a cycling tourism, the events organized by schools are generally at low expense – such an opinion was expressed by the surveyed teachers, so such outings are affordable for everyone. Being asked about any obstacles in their participation in cycling events, only 5% of teenagers stated that finances can be such an obstacle. 10% did not expressed any opinion on this matter and the others claimed that in case of this activity a lack of money is not a problem.

Considering the teachers' point of view, an essential obstacle in conducting a cycling tourism is a great deal of civil and legal responsibility for the participants of such an event. In case the students are not properly prepared in the matter of knowing and following the rules of a Highway Code and they do not know the rules of practicing a bike riding and its safety, a great part of teachers (80%) stated that they unwilling organize any forms of activity with a use of a bike, considering the above situations as obstacles. Over 40% of the teachers noticed some shortcomings in their own qualifications (not a sufficient knowledge of traffic rules and those governing an organization of such activities), 10% did not present their opinion on this subject. A need for better education seems to be justified. In case of students it can be done during the stationary lessons at school and some shorter outings, however, teachers can be educated at some training sessions and workshops organized outside.

It results from the research that at school the most frequently organized is the simplest and the most favourable form – a trip. In the literature of this subject it is possible to find different attempts of defining the word – trip. A trip is a short walk, ride or a longer outing of one or more than ten people going out of their

living place to learn something new and rest (Paterka, Wieczorek, Gołaszewski, 2000). Janowski proposes to include in a definitions terms strictly connected with school and identifies a trip with a deliberate, planned and supervised outing of students from a school building to complete the didactic and educational tasks of a trip defined in a special chart of this trip, considering also touring elements and recreational activities by involving its participants in an interdisciplinary way.
Apart from trips, school also organizes touring and tourist events such as bivouacs, and in the field of a qualified tourism – rallies (Janowski, 2003), although the latter instead of qualified take a form of more popular – directed to averagely fit and skillful participants. The above facts prove the research results. Being asked about the most common tourist events applied at school work, both teachers and students, first of all, mentioned some subject trips and some tourist and touring coach ones, and the next places were taken by intensive walks, bicycle trips and finally hiking bicycle rallies and bivouacs.

Starting to prepare a trip, in case of bike one, an organization should begin with preparing proper equipment for the participants. It would be advisable for every one to have a properly adjusted and technical roadworthy bike and, of course, everyone should be able to ride a bike. Nowadays an ability to ride a bike is quite common like possessing a bike. In the survey all the interviewed students and teachers admitted that they ride a bike and possess their own, but when it comes to its technical condition then only every third interviewed teacher and every second student declared that they do a regular service and maintenance works, although it is generally known that our safety during biking events depends on a technical condition of this basic equipment. Important as well is it selection. Nowadays a market offer is extremely rich. It is advisable to use bikes with gears as they make it possible to move in different terrain conditions (Nowotka, 1995). Before setting out on the fist trip with the students, it is necessary to make them aware how important is a technical condition of a bike. The research showed that more than a half of respondents from a group of students (55%) do not care about it. It is an important task for a teacher to inspect technical condition of equipment possessed by the participants of a trip. A teacher can do it on their own if they have the necessary skills or ask for help parents who know how to do it. For this reason a teacher can organize a meeting during which parents can do service and some maintenance works. It can be done during some stationary activities carried out at school. Periodical technical inspections, and in some more difficult cases pieces of advice to visit a proper bike service, can assure better safety and can also have an educational effect on young cyclist, teaching them how to deal with their equipment in a correct way. In case of personal or bike equipment, a teacher leading a group should be an example for the other participants – all the surveyed teachers agreed to it but 33% of them admitted that they can notice some shortcomings in their knowledge of this matter. The equipment is defined by a Highway Code. The required elements are brakes, a bell and a proper light (white in front and red at the back). Additionally, on the left side of a back luggage rack there should be fitted a so called "safe arm" (it is a 40 cm long wire ended with a

reflecting light) (Highway Code (Off. Gaz. No.58). In practice they also use a vertical flag attached to a luggage rack of the last bike in a column. Such a flag stands for information for drivers about a column of cyclists moving along this road. Although there are no legal regulations, it is advisable for the trip participants to have protective helmets, properly fitted and fastened, sunglasses protecting eyes from dust, wind, sunlight and insects. A teacher or one of the participants responsible for equipment has to possess good tools to do some minor repairs of bikes of different types. If there are bikes of various types and technical solutions, those who are responsible for equipment should take into consideration the sets of wretches, inner tubes and spokes taken by the owners of bikes. It should be good if every group takes at least two pumps of a universal type (Nowotka, 1995). It is the leader's duty to take on a trip a properly supplied first-aid kit which should contain dressings and such materials as latex gloves, scissors, tweezers, disinfectants, basic antiallergic medications (for example, soda lime), medications used externally (for swellings, nettle –rash, mosquito repellents), antiphlogistic and antipyretic medications, painkillers (it is also necessary to collect some information about some allergies in children and their parents' agreements to give any medications to their children). An essential element, frequently very helpful, is a mean of communication – nowadays we can use radiotelephones, popular walkie-takie to pass the information between the beginning and the end of a column on the way, or a mobile phone enabling also a contact with the parents and school (additionally a contact with a parent or other person possessing a car with a luggage rack suitable for bikes is advisable, especially in case of a bike failure which we cannot mend or a child's illness).

An unquestionable advantage of practicing a cycling tourism at the time of P.E. in a school year is a possibility to do it from early spring to late autumn (in our climatic zone 8-9 months) in a constantly changing landscape and environment, so for almost the whole school year we can carry out a teaching load (in winter – snow conditions – cycling can be replaced by skiing). Initially, according to the recommendations of the New Syllabus, the outings should be short across the closest area. Their task is to prepare and educate the students in the matter of health and fitness as well as technically for longer trips and hiking, and for teachers it could be an opportunity for self-mastery and checking their qualifications necessary to conduct some more advanced cycling events.

A teacher can assume that the majority of teenager who will join this type of activities to choose from, has some knowledge on the Highway Code and some experience in going along the public roads, besides, a teaching load on the I level of education (III grade of a primary school) assumes a realization of concepts connected with it (in schools pupils attend proper classes ending with an exam giving them a right to ride a bike on a public road). Unfortunately among students there can be some who can have a problem with putting into practice theoretical knowledge they have. Therefore it is safer to conduct the first cycling outings in smaller groups and choose the routes across the closest area and of a low intensity of traffic (cycling paths, quiet narrow streets, side roads), which is in accordance

with the New Syllabus when it comes to doing tourist activities. The choice of routes is dependent on some conditions about which a group leader should remember. To the most important belong the following ones:

- to adjust a length and difficulty of a route to age, physical abilities and skills of a group,
- to take into consideration a shape of a terrain,
- to consider weather conditions,
- the leader's knowledge of a route, which is essential toassure safety to all participants – it is advisable for a teacher to ride along a route themselves before going there with a group. If it is impossible, a teacher is obliged to analyze maps and tourist guidebooks (Rut, 1998).

Cycling outings covered by activities to choose from P.E. at one time should take maximum 8 hours, this option depends on a group and can be performed during one or two days. Riding can be connected with a bivouac or taking part in a fiesta, visiting monuments or paying a visit to an interesting place. The elements of entertainment and pleasure could lessen participants' tiredness resulting from covering a route. With the time passing it is possible to introduce some more difficult routes which would enable participants to gain skills to move across each type of a terrain. Another attraction may become the elements of an off road ride – along forest paths or lanes in a park with numerous up and down hill roads. For the sake of a successful outing it is also important to plan rest places along a route and a careful consideration of a returning way by a leader – simpler and shorter, (it is necessary to remember that students, especially those younger ones get tired quicker and grow weary while pedaling, therefore it is necessary to watch a group constantly, its mental condition and when it is necessary to stop and rest in a proper place). Preparing a route, a teacher should firstly think how not to discourage young people from another attempt to mount a bike.

When we compare all the aspects of hiking and cycling tourisms, it is necessary to state that it is more difficult to conduct the latter one and a teacher's responsibility is much bigger. For this reason the safety regulations in some points are much stricter. One of such points is the one defining a number of participants for one teacher and a size of a cycling column. In the first case a teacher can take care of a group of 10-12 cyclists, in the other a column can include up to 15 people (a Highway Code (Off. Gaz. No.149). A teacher cannot take on a cycling trip students who are not disciplined and do not follow teacher's commends. It happens that students feel a natural need of competing with each other and forget about the rules of a safe ride. Therefore this is a task for a teacher to educate a group, which means that a teacher has to teach them how to use public roads in a safe way and pay attention to other traffic participants and these aspects are strictly connected with knowledge of the Highway Code rules. These tasks should be done, for example at school, in a period which is for student an introduction to practicing in a chosen form of tourism. The first cycling outing should be devoted to learning in practice the rules referring to riding in a column:

- paying attention to keeping a safe distance, riding up a hill and stopping a column,
- teaching students that it is forbidden to overtake other cyclists riding in the front part of a column
- we establish a signaling system (Łobożewicz, 1983).

Apart from mastering the rules of moving in a column in practice, it is absolutely necessary to teach students how to use gears, change them while riding a bike and adjust them to terrain conditions.

Before the very start, a leading teacher should remember to:

- inspect a technical condition of bikes, especially check the brakes (a bike which is not roadworthy unfortunately eliminates its owner from a trip),
- take a first-aid kit (properly equipped) and a set of tools (wretches, pumps, spokes, etc),
- check the participants clothing, recommended are clothes in bright colours and in spring and autumn, when it gets dark relatively early, if it is possible clothes should be equipped with elements phosphorescent in the car lights, check also if the helmets, backpacks and bags on a luggage racks are fastened,
- remind the most important safety rules which the participants have to follow during a trip,
- talk over a route and analyze in a precise way the first stage of a trip (attract participants' attention to some dangerous places, define some planned stops – breaks),
- for each participant set a place in a column (according to a rule that the weakest and least experienced are as close to a leader as possible),
- remind an establish signaling system that should be used while riding (verbal and visual ones),
- choose by name another person closing a column (another teacher, parent, older student – it is important especially during the first trips). If it is possible it should be a person who is the best cyclist with the best experience and trustful. In this case the number of participants should be lowered to 5-6 people (Paterka, Wieczorek, Golaszewski, 2000).

Summery and conclusions

Summing up, it is possible to state that due to the New Syllabus and possibilities to apply in school lessons of P.E. created by it, a tourist activity with a use of a bike increased its chances to become popularized at school. Participation in a cycling tourism brings many benefits. Apart from cognitive aims, it can be a form used to complete the tasks connected with a process of education, it also has many health qualities. Cycling tourism can satisfy development and health needs of modern youth, arouses interest in active leisure, provides an opportunity of self-assessment of one's fitness, teaches cooperation and contact with other people. As an educational factor it creates some characteristics, strong will, ability to cooperate in a social group, positive attitude and at the same time it makes possible

to release stresses, gives a sense of freedom and joyful time. It definitely arouses enthusiasm and gives a lot of energy to overcome some obstacles of everyday life. It is en element presenting a positive influence on participants' skills to get adjusted to changing conditions of a new environment, new people, playing new social roles, which nowadays becomes more and more important.

On the other hand, school, introducing to its curriculum a tourist activity – activity with a use of a bike, increases the attractiveness of its educational offer directed to a student. It gives an opportunity to arouse and widen their interest in tourism and fully complete a process of educating in a field of a widely comprehended physical culture.

Judging by the research results, it ca be assumed that according to the opinions presented by the respondents, the greatest advantages of a school cycling tourism are: an opportunity to relax, good fun in a company of peers, a chance to check one's fitness and stamina as well as abilities to cooperate in a team and a riding technique. The lowest number of respondents in this group declared for new interesting places which in many cases are difficult to reach. The surveyed teachers, however, appreciated the most some educational values such as creating some characteristics in young people and their organizational skills and further those cognitive ones such as a better acquisition of knowledge in practice. Health values such as hardening a system and opportunity to release a surplus of energy turned out to be also important and appreciated by teachers.

Potential obstacles can have a negative influence on people's decisions in any sphere of life. To a group of those these the most serious belong the financial ones. In case of a cycling tourism, the events organized by schools are not usually connected with high expenses – this the opinion presented by most teachers. From a group of the surveyed students only a very low percentage of them admitted that parents' financial problems can constitute for them an obstacle in participating in such an event. However, a vast majority stated that in case of a school cycling tourism a shortage of money is not an obstacle. On the other hand, from the point of view presented by a big group of teachers an important obstacle in conducting a cycling tourism is a great civil and legal responsibility for the participants of each event. Almost half of them also perceive some shortages in their qualifications.

It results from the research that at the school work teacher the most frequently conduct the simplest, and due to it, the most popular form – a trip. Both teachers and students in their answer gave a priority to this form differentiating, however, its types which range from a subject trip and a tourist and touring extensive (coach) one through intensive hiking to a cycling trip. From the other forms on the next places they put hiking and cycling rallies and bivouacs.

All the surveyed students and teachers agreed that they ride bikes and possess their own ones but when it comes to their technical condition, only every third teacher and every second student declared that they regularly service their equipment and do some maintenance works. More than a half of respondents from a group of students do not pay a proper attention to this matter. In case of personal

equipment and a bike outfit teachers conducting groups should be an example for other participants and to this matter all the surveyed teachers agreed.

Realization of the cycling tourism content as activities chosen by students will bring expected effects if teachers have adequate qualifications in a field of preparing and conducting different forms of cycling tourism, and what is connected with it, they should know the answers to the following questions:

- what means to take to organize well activities with a use of a bike,
- what documents prepare,
- what are the regulations concerning safety rules and principles of conducting a school tourist activity,
- how to prepare and what equipment to take on a cycling trip,
- also important is their vast knowledge on a trip destination and abilities to manage participants spare time.

As a result of fulfillment of assumptions of a curricular school tourism (cycling) in a form of activities to be chosen by students and a fact that they are conducted by a group of properly qualified teachers, more and more young people enter their adult lives are given an opportunity to consciously and willingly cultivate this type of a tourist activity as the one they accept to spend their leisure time. A cycling tourism, both from the point of view presented by students and teachers, can be regarded as an attractive form of activities to choose from P.E. and making a school offer of tourism more attractive.

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Teachers' disciplinary intereactions used in appropriate educational areas on pupils depending on the sex of the teachers

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Key words: a teacher, a pupil, disciplinary interactions, discipline at school

Abstract

Fundamental role of a school is to create the environment for learning and acquiring new skills- since passing the knowledge and skills in an appropriate way is its basic role. Environment, which does not support learning, challenge the sense of the existence of schools. Following this principle, if the appropriate learning conditions play such a significant role and lack of discipline poses a tremendous danger for the learning process, maintaining class discipline (in a general meaning, not only during lessons), is the most important matter.

The aim of the thesis was to decide what kind of disciplinary problems teachers have during work at school and outside it. In what kind of educational interactions teachers encounter disciplinary and dysfunctional or pathological problems and what is their reaction.

The analysis was conducted in two groups of teachers, men and women. The aim of the research was to show the differences in noticing the discipline problems and the ways of dealing with them as well as the differences and similarities between men and women reactions.

In a research the Teachers' Reaction Questionnaire used towards pupils in various educational situations and educational areas. Educational areas are the areas of interactions of teachers on pupils such as: lessons, breaks, going out outside school, long trips with the class, a teachers way to- back school.

The research sample was randomly chosen among the teachers of all specializations teaching in secondary schools in Cracow. The random, proportional layering choice was used.

Taking into consideration the results of the research it is possible to state that sex of the teachers has an extremely important role when it comes to the disciplinary reactions used by the teachers in all educational areas. Women intervene more often than men. It happens despite the fact that women get bigger scores in emotional intelligence, their reactions are more aversive.

It is also possible to highlight reactions that are common to both groups. Such reactions include: informing the class teacher (all areas), individual talk with a pupil and individual reprimand of a pupil (some areas).

Introduction

Effectiveness in the educational and didactical process of a contemporary teacher is to a wide extend limited by the violation of school discipline by pupils. In a new job the teacher can be faced with the aggression from the pupils as well as parents. Some authors even say that: 'the level of insolence of unpunished pupils goes beyond the imagination boundaries of the teachers and makes them unable to react'. Until these days, the only program, made by the department of education and which could help to fight with the aggression in schools, is program called 'Zero Tolerance'. Following the rules of this program the Teachers' Charter has been amended and consequently teachers were granted the right to defend themselves as the public officials. Unfortunately, these are the only actions taken by the educational officials and which could eliminate the problem with aggression in Polish schools. The problem of keeping the discipline is still the basic role of the teacher and nobody would help. Consequently, the teachers have to manage themselves. The better educational background in this field they possess the more effectively they will probably manage in the situation of conflict and disagreement with the pupils. Certainly, the communicational, didactical and specialized qualifications of the teacher are not sufficient. Wide psychological abilities, which could help to motivate, inspire, manage and integrate the students, are extremely required. Furthermore, some of the authors (King) states that a teacher needs certain therapeutic skills among which he enumerates the ability to listen, understand, comfort, take advantage of crisis and ability to act positively.

That kind of abilities are usually attributed to women. As the researches show, women tend to be less concentrated on the results or achievements and do not show the need to dominate. What they concentrate on is the emotional relation between people. Men, on the other hand, have a bigger level of concentration, and have the tendency to react mechanically. It has an enormous meaning for people perusing professional career, social position and the most importantly feeling the need to succeed.

In this context, the question of creating discipline and control over pupils by male and female teachers, seems to be interesting.

The aim of the research

The aim of the research was to establish what kind of problems teachers can encounter during lessons as well as in other places connected with school work. In what educational areas teachers can encounter some dysfunctional and pathological behavior of the pupils and what is their reaction in such situations.

Analysis of that kind was made in two groups of teachers, among men and women.

The aim of the research was conducted to show the differences and similarities male and female teachers perceive school discipline. More precisely, the subject of the research was to state in what kind of school situations they participate (taking disciplinary actions) the teachers of both groups and what kind of interventions do they prefer in the same educational situations.

On the basis of the previous deliberations the following research questions were made:

1. What kind of interventions are used by teachers at school and outside it the most often?
2. Does sex of the teachers differentiate the number and type of disciplinary interactions?

The research hypothesis was stated:

H1: The sex of the teacher differentiate the type and number of disciplinary interactions.

Material and the method of research

An operant variables include the sex of the teachers noted in the questionnaire.

When it comes to the dependent variables, they consisted of disciplinary interventions used by the teachers in the school and beyond it, as well as the number of disciplinary reactions made by the teachers. Both variables were examined by means of the questionnaire which was created on the basis of the previous research of the author.

1. The creation of the research tools.

The research of disciplinary interactions of the teachers of various specializations of the pupils were made in two stages.

In the first stage of the project the research organ was defined and empirically in a period study the research organs were checked. The research organs were created for the needs of the above presented research.

In the second stage of the research the adjustment of the trial research, the appropriate approval and permission for carrying the research have been granted and the main research was made according to strictly defined procedures. During the further stage the research material was collected and subjected to the static analysis which presented the relation between the variables.

During school career a teacher encounters various reactions of the pupils in a situations inside the school as well as outside it. They have to, in that situation, make to correction of the behavior or intervention not only during the lessons, but also outside the school where theoretically the authority of the teacher does not reach.

The differentiation of the following areas of disciplinary interactions between the teachers and the pupils seems to be justified. Five disciplinary areas, where hierarchical relation between teachers and pupils exists, were created.

Areas, where teaches come into interaction with the pupils:

1. Compulsory classes, during which the pupils can in a innumerable way disturb the classes by causing some disciplinary problems. Here, the role of the teacher is to bring the order into the class.
2. Breaks between the lessons, during which the pupils very often break the common rules, behave aggressively and irresponsibly. The reactions of the teacher on the school corridors are to prevent such behavior and to minimize its results.
3. Trips outside the school area. (e.g. cinema, theatre, sport competitions). These are situations during which the teacher has to pay a great attention to the behavior of the pupils especially on the way to the destination (in public transport), after arrival to the place and during the way back. The pupils can behave inappropriately during the way to the place as well as inside it.
4. Trips, camps - trips outside the school lasting usually few days. For the teachers of theoretical subjects it means going for camps, integration trips, while for PE teachers, it means leaving for sport camps. Repertoire of behavior in this case is extremely broad and certainly specific. The rules of the place where the pupils stay, can be broken by a violation of the quiet hours, wandering off the place, smoking cigarettes and drinking alcohol.
5. Getting of the teacher to and from the school. Very often teachers are the witnesses of various behavior of their students not only in the school but also outside it. It can be presumed, that most of them do not react in case of some pathological situations. However, the biggest number of the teachers react in that king of situations, feeling at the same time the pedagogical and didactical mission.

The situations described above, present the areas of the interactions that teachers have with their pupils.

In the teachers' reactions questionnaire, the behavior of the pupils against the school discipline was presented according to a following pattern: rebelling against the system of school discipline, against the teacher, against the school colleagues, and it was grouped into previously presented areas of educational interactions (5 interactions). Whereas, teachers' reactions in the questionnaire were divided into four groups: verbal reactions, informal reactions, formal reaction and nonverbal reactions.

2.The survey sample description

881 people participated in the research, the teachers from the schools in Cracow, 655 women (74,35%) and 226 men (25,65%). Theoretical subjects were taught by 686 people (77,87%) and physical education 195 (22,13%). The sex division in both specializations was presented in the chart number 1.

Chart 1. Sex division in researched specializations

		Specialization				All	
		Theory		PE			
		N	%	N	%	N	%
Sex	k	563	82,07%	92	47,18%	655	74,35%
	m	123	17,93%	103	52,82%	226	25,65%
All		686,00	100%	195	100%	881	100%

$\chi^2(1) = 96,92$; $p < 0,001$

The average work experience was 14.28 years (OS=8,22); the shortest experience was 1 year; the longest: 41 years.

The results of the research

1. The description of the most commonly used teachers' interventions in all educational areas regardless of the teachers' sex.

The considerations below are connected with an answer to the research question no 1 stated (What kind of interventions are used by teachers at school and outside it?).

The teachers' reactions on presented behaviour of pupils were in every kind of educational situations collected into 4 groups: a) verbal reactions, b) nonverbal reactions, c) formal reactions and d) informal reactions. Apart from that, the teachers could note next to every situation in every space any other reactions which were not included in the questionnaire. Some of the reactions occurred in some of the situations only. On the other hand, some specific reactions were used only in clearly defined situations.

Analyzing the reactions of the teachers, taking into consideration the frequency of their usage. Regardless of the educational areas and educational situations, it can be noted that certainly the most frequently used reaction is: 'individual reprimand of a pupil'. The average result of this reaction was located in the range between 2,93 and 3,59 (max. 4,0). As a result of this data, it can be stated that respondents used that reaction often and vary often. This a verbal reaction and is a short intervention aimed at the specific pupil as a way of reprimand the pupil and directing him/her for working and learning. Contrary to the reaction, e.g. 'expressing approval', or 'severe taking the pupil back to task', that reaction is considerably discrete and directed. Moreover, this reaction does not need the attention of the whole class. As Merrett stated, (Merret and wsp.1994) realizing the guilt by the pupils helps them to look at their own actions more critically. From the group of 1800 pupils of the primary schools 56% is of the opinion that 'loud reprimand makes them stay calm for some period of time', and only 38% think that better results brings reprimand that is said 'in silence that nobody can hear'. That is a verbal reactions from which it is not possible to make the conclusion about the

atmosphere of the reprimand. That reaction may have some negative connotations and can even include the elements of threat. On the other hand, it can be only a reminder that the pupil behaves badly. The least popular reactions were the informal ones, such as: 'physical contact', e.g. catching pupil's arm. The average was in a range between 1,02 to 1,22. On the basis of this result it can be stated that this reaction is used very rarely. The teachers' interventions can be classified in various ways depending what kind of criteria is taken into account. The criteria of division that the author concentrated on is the communication channel and the source of conception. Interactions highlighted on the basis of the communication channel are verbal reactions such as (reprimand, explaining, thereat), and non verbal interactions such as (gestures, body language, miming and distance). The second criteria of division is understood as a source of conception and sanctioning of the intervention. The source of formal reactions (a note is the class record, informing the class teacher, parents, a proposal for a statute punishment) are the rules and regulations (statute of the school) that regulate the behavior of the pupils and actions of the teachers. The source of informal reactions are (temporary exclusion from the classes, 'physical contact' and others), the historical context of the school and the personal experiences of the teachers.

Another criteria of division is the length of the interaction. Short-lived interactions (reprimand, preventive hand gesture, short meaningful look), which do not take much time, can be enumerated. In the same group there are long interactions which need a lot of time devoted (explanation of the impropriety of the behavior, individual talk with a pupil after the lesson).

The proof of the existence is the criteria which is divided into ones that do not leave any trait in records, e.g. a request for the change in behavior, disciplinary activities, nodding a finger and the ones that leave the sign in the records. In this category are reaction like: a note in the class record book, giving a mark, a request for the statue punishment). It can be a note or just a mark.

Interactions, which the consequences are immediate form the pupils or appear after some time are divided according to postpone criteria. Reprimand in front of the whole class, temporary exclusion from the classes are the sanctions the results of which pupils feel immediately at the moment when the intervention was made. A different type of reactions are those which 'work' after some time, e.g. depriving a pupil of privileges, informing the parents or the head master.

The severity or intensity of the sanctions are the criteria highlighting the teachers' reactions which are not severe for the pupils and which are extremely severe. Certainly, a reprimand or short meaningful look are the reactions of a very low level of severity and are concentrated on the correction of the pupils' actions. Reactions which involve the high number of severity are reactions which occur in the situations of conflict and it reactions like: lowering the mark form the behavior or asking for the status punishment. Naturally, the effectiveness of the sanctions depends of how sensitive the pupil is and what is his/her attitude towards the school.

From the point of view of the formality, the reaction of a teacher can be divided into legal and illegal ones. Legal reactions are those which are sanctioned by the school regulations or by the school customs. Illegal actions, on the other hand, are the ones which break the rules and laws and which hare aimed at doing harm to a pupil. That kind of interactions include physical contact, (hitting the pupil), or excluding a pupil from the classes.

The sign of the reactions is the criteria dividing the ways of reaction of the teachers on positive or negative and neutral from the point of view of the pupil. Reactions which aimed at correcting the behavior positively (uplifting reactions) are the ones which improve the humor of the teacher as well as pupil ('turning the situation into joke', 'accurate' witty remark). Neutral reactions are those which aimed only at calming down the pupil, correction of the pupil's behavior and not having any other meaning e.g. personal (a request form a better behavior or explanation of the impropriety of the behavior).Negative (lowering) reactions, are aimed not only at the change of the behavior but also involve the judgment of the pupil's actions and may have some detrimental effects. 'Reprimand in front of the whole class' and 'expression of disapproval' are that kind of sanctions under the condition that they lowering judgment of the pupil at the same time.

'Individual talk after classes', 'talk with a pupil face to face during lesson', are directive reactions which are aimed at the particular pupil and have an individual character. Apart from that, there are interventions which involve not only the most direct participants of the actions (a pupil, a teacher), but also other people- parents, members of the class. In this category it is possible to enumerate reactions like: 'reprimand in front of the whole class' , 'using a group pressing', 'informing the headmaster'. In this way interventions can be divided into according to involvement and context criteria and they have individual or collective character.

Interventions can also be divided according to originality. Reactions commonly used e.g. reprimand and reactions less frequently used which are the result of the experience and fantasy of a teacher e.g. 'a pupil writes 100 times- I will not say bad words any longer'.

The extend of the reactions are the criteria which divide the reactions into universal ones, used in most of the educational situations (e.g. reprimand, informing the class teacher), inseparably of the fact if the teacher goes for the class trip with the students or conducts on ordinary classes. Another type are specific interventions used only in some defined situations such as: taking back a substance or sending back a pupil to home at the parents expense.

2.Verification of H1 hypothesis: The sex of the teachers influences the type and number of the disciplinary interactions used.

The sex division in both specializations are presented in the chart below, which was presented at the beginning of the chapter. However, it is presented again to verify the H1 hypothesis.

Chart 1. Sex division in researched specializations

		Specialization				All	
		Theory		PE			
		N	%	N	%	N	%
Sex	W	563	82,07%	92	47,18%	655	74,35%
	M	123	17,93%	103	52,82%	226	25,65%
All		686,00	100%	195	100%	881	100%

$\chi^2(1) = 96{,}92$; $p < 0{,}001$

In general, in the research took part 655 women (74,35%), 563 were the theory teachers and 92 PE teachers. There were 226 men (25,65%), 123 were the theory teachers and 103 PE teachers.

Analysis on the basis of the chi-square indicated the essential sex division in both specializations; among the theory teachers there were more women than among PE teachers.

The detailed analysis is impossible due to the fact that the number of women taking part in the research was much bigger than the teachers of PE and men. In that kind of sex division it is hard to say if the connection between the sex and type of the intervention is the result of real correlations happening in the general population or the result of not proportional division of sex. Consequently, the analysis correlation between the sex of the people was omitted and the type of the correlations used. Due to the fact, that disproportions in the number of women and men, without the division of the specializations, (theory vs. PE), are not so severe, the analysis of the correlations on the basis of the sex was made.

Analysis was made by means of U Mana-Witneya test, used to examine the differences between both populations, in a range of characteristic measured on ordinal scale or having a range moving back from the normal one.

Disciplinary reactions of the teachers in appropriate educational areas were presented in following figures (fig.1-16). Presented figures show the interventions of women, men and universal interventions according to the increasing level of frequency, from the least frequently used (lower parts of the figure) to the most frequently used (upper parts of the figures).

Figures number 1-5 show in a graphic way the results of the research connected with the educational situations happening during the classes. As it can be noticed on the presented material, women more often that men: reprimand pupils, express their disapproval, inform the class teacher about a bed behaviors, conduct individual talks with the pupil after lessons or verbally strictly react taking pupils to tasks. Men, more often in some dysfunctional situations give a mark from the subject or temporary exclude a pupil from the classes. It can be guessed that, these reactions are typical for the PE teachers.

Among the universal reactions, the ones that both men and women use, are: a request made to the pupil for the change of behavior, making a note in a class record book and a witty remark directed for a pupil.

Fig. 1-5. The most common teachers' reactions depending on the sex of teachers.

Fig 1. A pupil is late for classes.

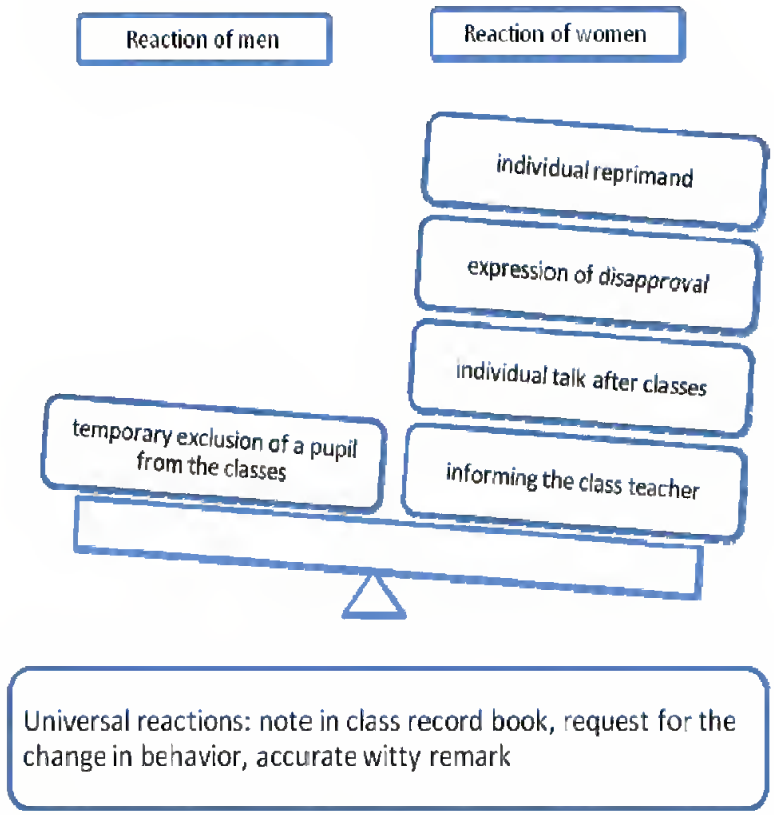

Reaction of men
Reaction of women
individual reprimand
expression of disapproval
individual talk after classes
informing the class teacher
temporary exclusion of a pupil from the classes
Universal reactions: note in class record book, request for the change in behavior, accurate witty remark

Fig 2. A pupil disturbs classes

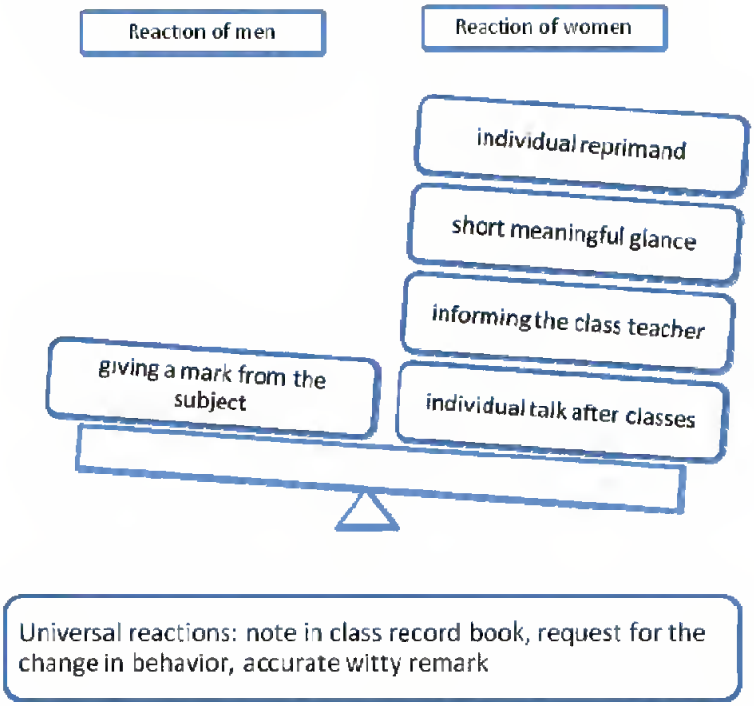

Reaction of men
Reaction of women
individual reprimand
short meaningful glance
informing the class teacher
giving a mark from the subject
individual talk after classes
Universal reactions: note in class record book, request for the change in behavior, accurate witty remark

Fig.3 A pupil behaves aggressively

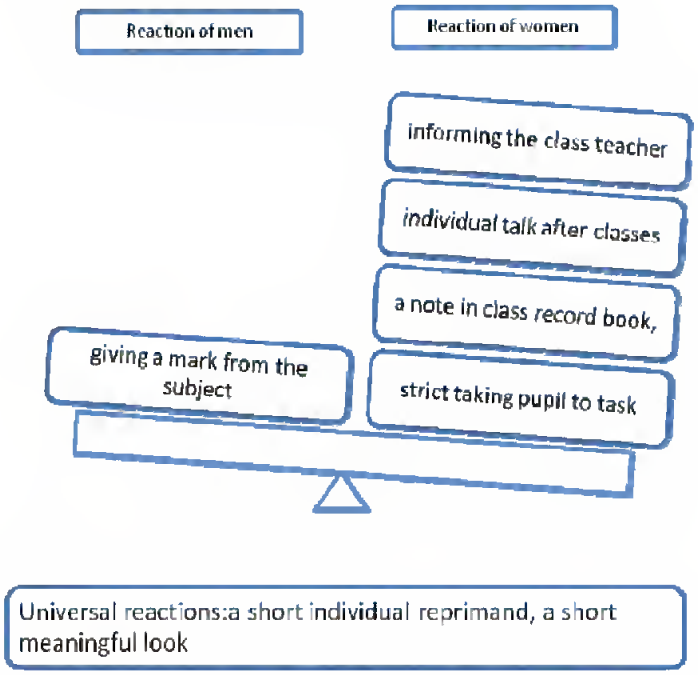

Reaction of men
Reaction of women
informing the class teacher
individual talk after classes
a note in class record book,
giving a mark from the subject
strict taking pupil to task
Universal reactions:a short individual reprimand, a short meaningful look

Fig. 4 A pupil behaves vulgar

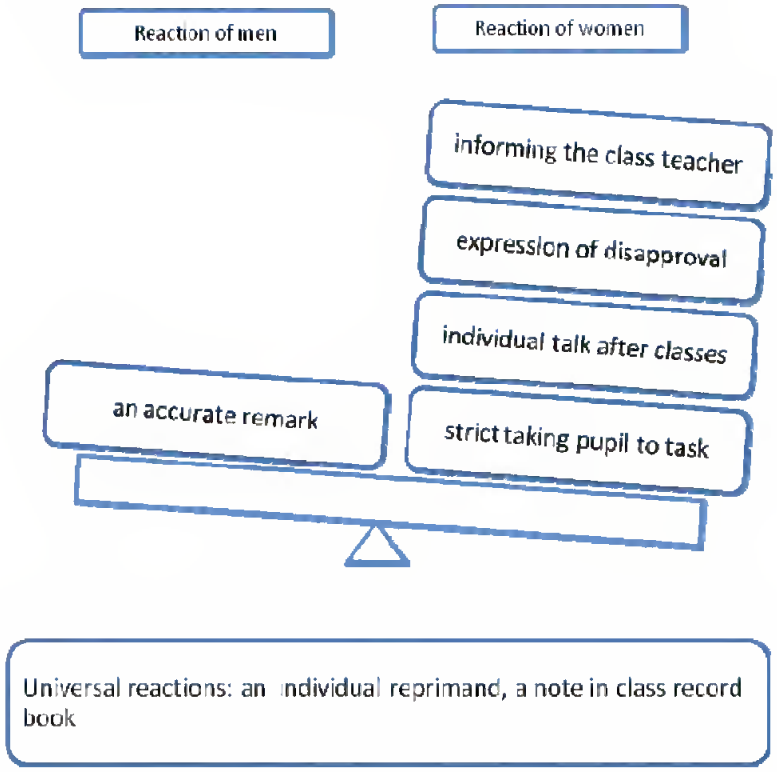
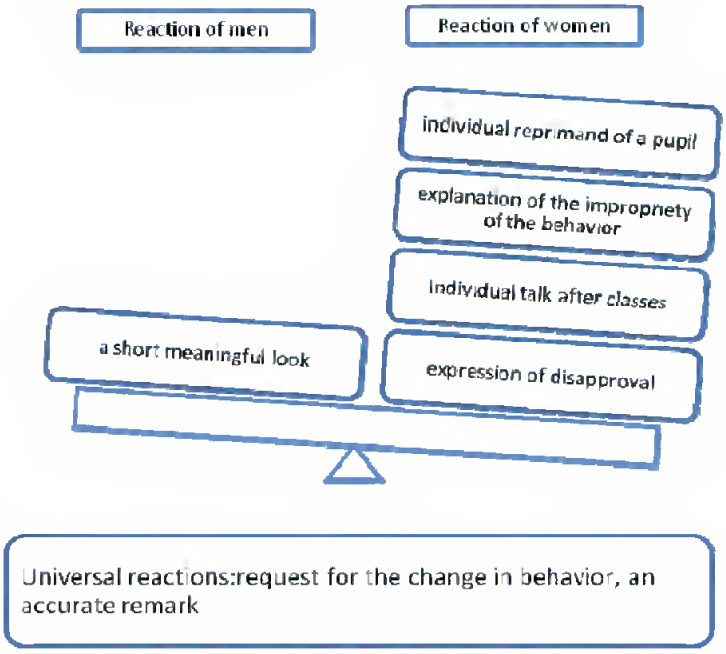

Reaction of men
Reaction of women
informing the class teacher
expression of disapproval
individual talk after classes
an accurate remark
strict taking pupil to task
Universal reactions: an individual reprimand, a note in class record book

Fig 5. A pupil does not listen to the teacher's commands or does it carelessly


Reaction of men
Reaction of women
individual reprimand of a pupil
explanation of the impropriety of the behavior
Individual talk after classes
a short meaningful look
expression of disapproval
Universal reactions:request for the change in behavior, an accurate remark

Next educational area, where the behavior of the teacher was analyzed are the school brakes. During the school brakes teachers observe pupils on the corridors and playing fields. Being the witnesses of some dysfunctional they have an obligation to react. Interventions of that kind are presented in figures 6-9.

As the data suggests women tend to reprimand pupils more often, inform class teacher about the wrongdoers, ask for the apologize of the victim or explain the incorrectness of the behavior.

Men, on the other hand, more often than women give notes from the taught subject. What is very interesting, the educational situations from the brakes have its expression in the marks. It can be presumed, that reactions of that kind are the privileges of the PE teachers, who take into consideration the behavior, attitude of a pupil and the commitment, while deciding about the marks. In that case, broadly understood behavior of pupil has its expression in a mark. The teachers of theoretical subjects can only place the mark from the behavior in an area not connected with the mark from the subject itself.

Among the universal reactions there are: individual educational talk, a note in students' record book and in case of specific cases informing the class teacher and a headmaster.

Fig 6-9. The most commonly used teachers' reactions during the school brakes.
Fig 6. A pupil destroys the school's equipment (benches, toilets, equipment)

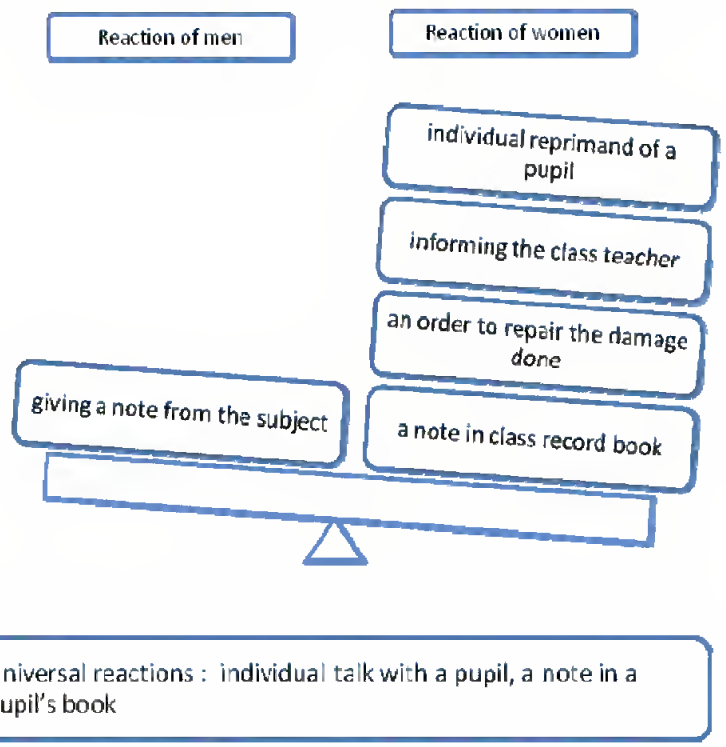

Reaction of men
Reaction of women
individual reprimand of a pupil
informing the class teacher
an order to repair the damage done
giving a note from the subject
a note in class record book
Universal reactions : individual talk with a pupil, a note in a pupil's book

Fig 7. Behaves badly: laughs at others, extorts money, fights

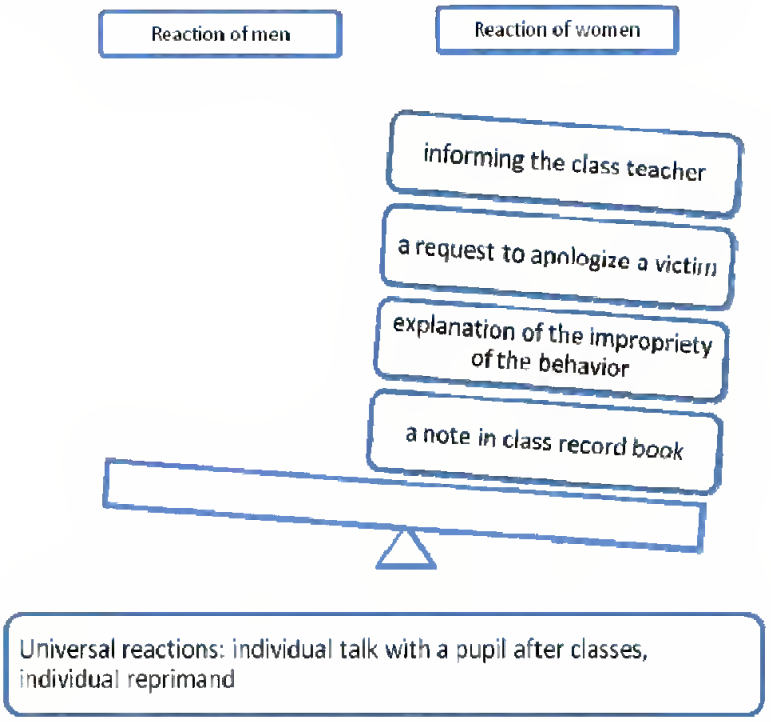

Reaction of men
Reaction of women
informing the class teacher
a request to apologize a victim
explanation of the impropriety of the behavior
a note in class record book
Universal reactions: individual talk with a pupil after classes, individual reprimand

Fig 8. Does not behave according to the rules of the school: throws rubbish, smokes, drinks alcohol, takes drugs

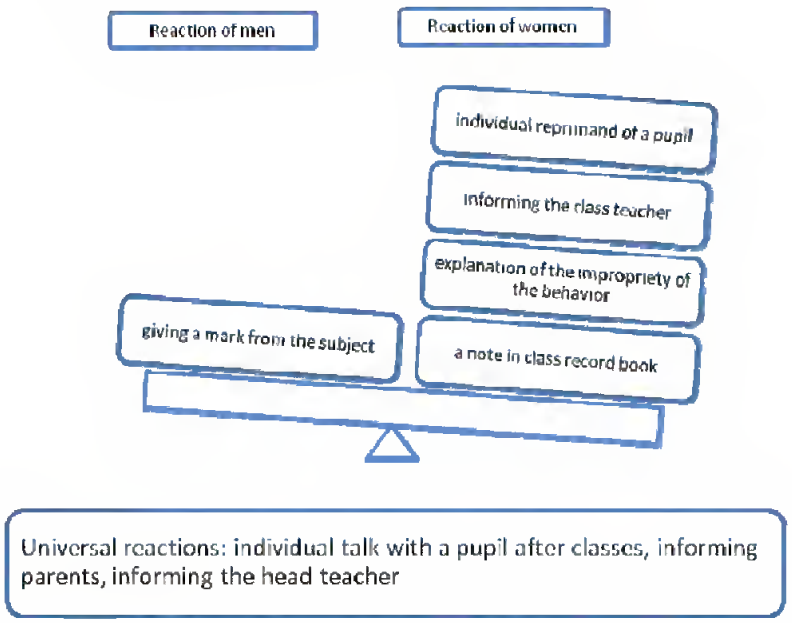
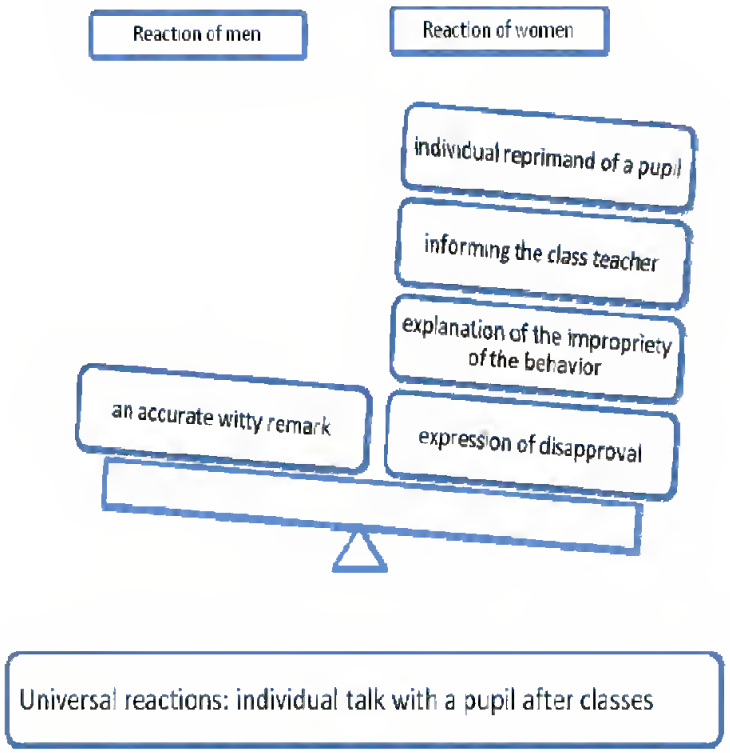

Reaction of men
Reaction of women
individual reprimand of a pupil
informing the class teacher
explanation of the impropriety of the behavior
giving a mark from the subject
a note in class record book
Universal reactions: individual talk with a pupil after classes, informing parents, informing the head teacher

Fig 9. Behaves vulgarly. Uses bad words and vulgar gestures


Reaction of men
Reaction of women
individual reprimand of a pupil
informing the class teacher
explanation of the impropriety of the behavior
an accurate witty remark
expression of disapproval
Universal reactions: individual talk with a pupil after classes

The most frequently used reactions of the teachers during trips outside school, to theatre, cinema or sports competitions present figures 10-12.

Analyzing the results of the research it can be stated that women more often in such situations use ask for a change of the behavior, reprimand or inform the class teacher about the accident. Men, on the other hand, more often give mark from the subject.

The interventions like: reprimand, individual talk with a pupil, a note in a class record book and strict taking to task are the reaction used by both men and women.

Fig 10-12. Presents the most frequently used teachers reactions during the trips outside school (theatre, cinema, museum). according to the teachers sex.
Fig 10. A pupil behaves badly on a way in a tram or a bus

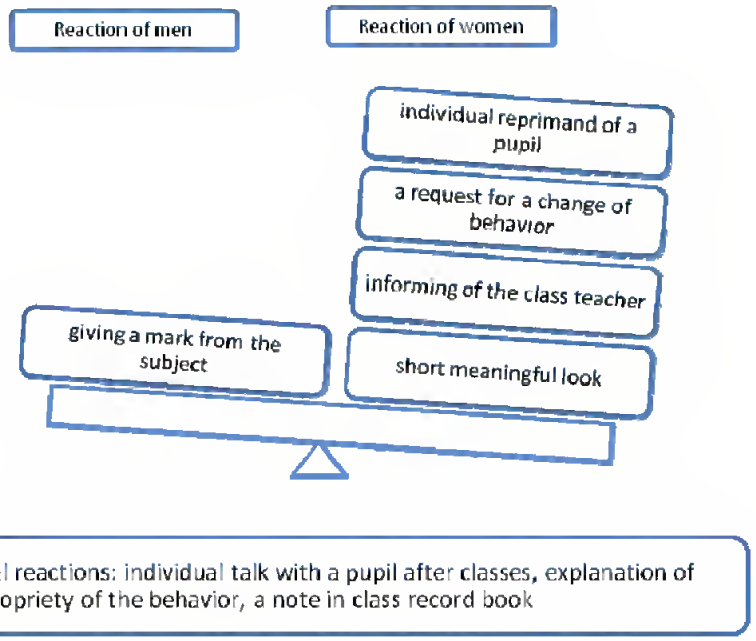

Reaction of men
Reaction of women
individual reprimand of a pupil
a request for a change of behavior
informing of the class teacher
giving a mark from the subject
short meaningful look
Universal reactions: individual talk with a pupil after classes, explanation of the impropriety of the behavior, a note in class record book

Fig 11. A pupil behaves badly in a place of destination (in a theatre, museum)

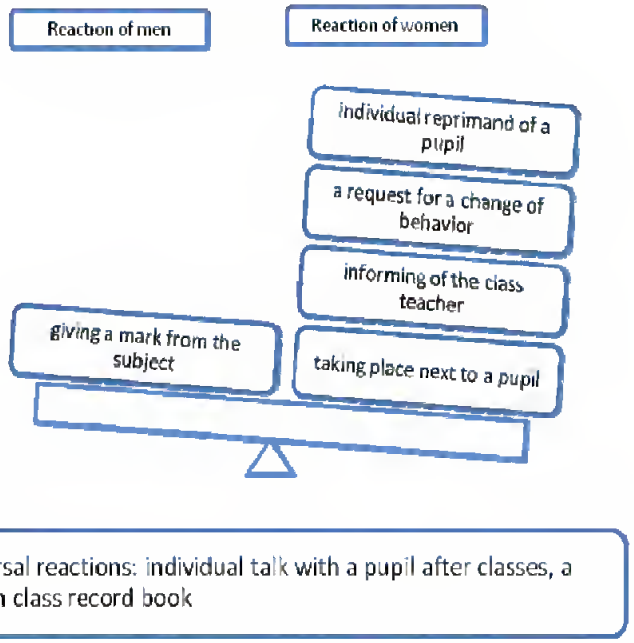
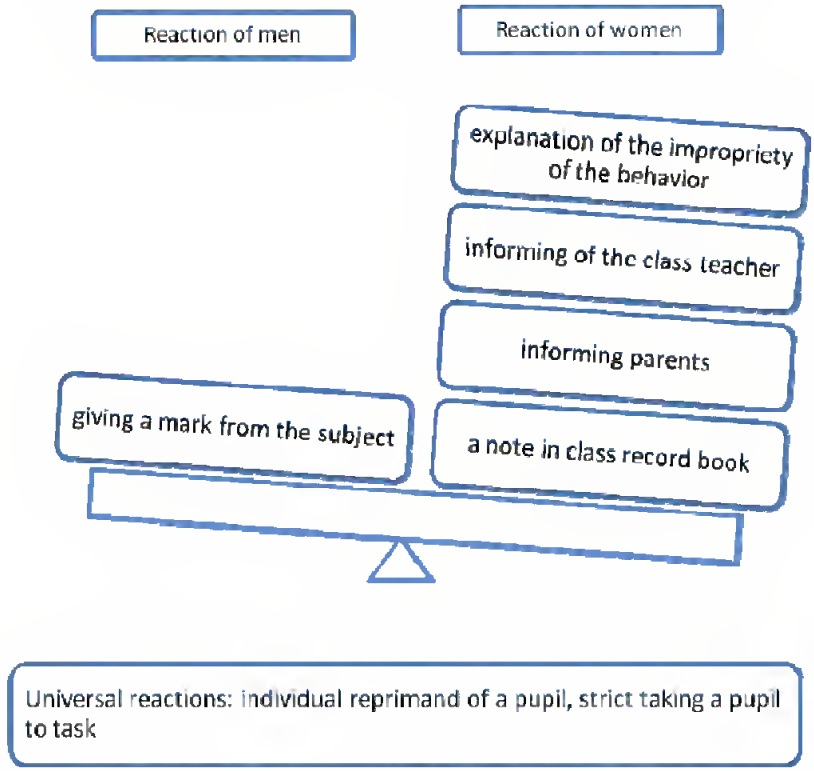

Reaction of men
Reaction of women
individual reprimand of a pupil
a request for a change of behavior
informing of the class teacher
giving a mark from the subject
taking place next to a pupil
Universal reactions: individual talk with a pupil after classes, a note in class record book

Fig 12. A pupil goes far from the group without teachers permission


Reaction of men
Reaction of women
explanation of the impropriety of the behavior
informing of the class teacher
informing parents
giving a mark from the subject
a note in class record book
Universal reactions: individual reprimand of a pupil, strict taking a pupil to task

Next educational area which is analyzed are the longer trips with a class during school camps, sport camps and integration trips. (Fig.13 -16).

If during such occasions a discipline is violated by the pupils then women more often than men reprimand pupils, talk with them individually, and in case of some severe accidents inform the headmaster, parents or decide about the lower mark from behavior. Men, on the other hand more often give a mark from the subject or in some pathological situations inform the police. It happens if pupils drink alcohol or take drugs.

Universal reactions are varied and depends on the concrete educational situation.

It is quite common that teachers on their way to or back from witness some pathological behavior of pupils, such as: loud etiquietting and laughing at teachers in public places, smoking and using vulgar and bad words and expressions.

Women who see that kind of behavior immediately inform the class teacher or parents, reprimand or explain the impropriety of actions. Men, at the same time, create short ironic remarks aimed at the pupil.

Among the universal reactions there are: individual talk with a student and strict verbal reprimand.

Fig 13-16 The most common teachers' reactions depending on sex, during trips with pupils (school trips, sport camps).
Fig 13. A pupil does not follow the rules of the facility (breaks the quiet hours, destroy the equipment)

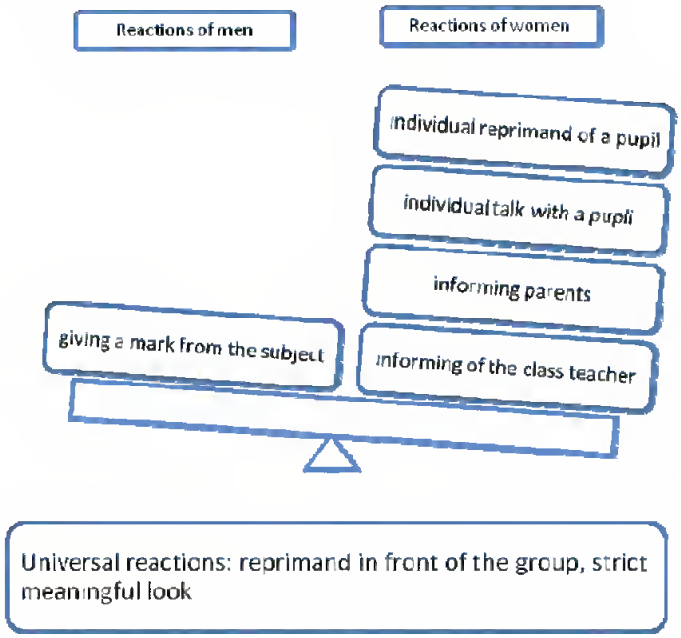

Reactions of men
Reactions of women
individual reprimand of a pupil
individual talk with a pupil
informing parents
giving a mark from the subject
informing of the class teacher
Universal reactions: reprimand in front of the group, strict meaningful look

Fig 14. A pupil goes beyond the area of the facility and does not participate in group activities

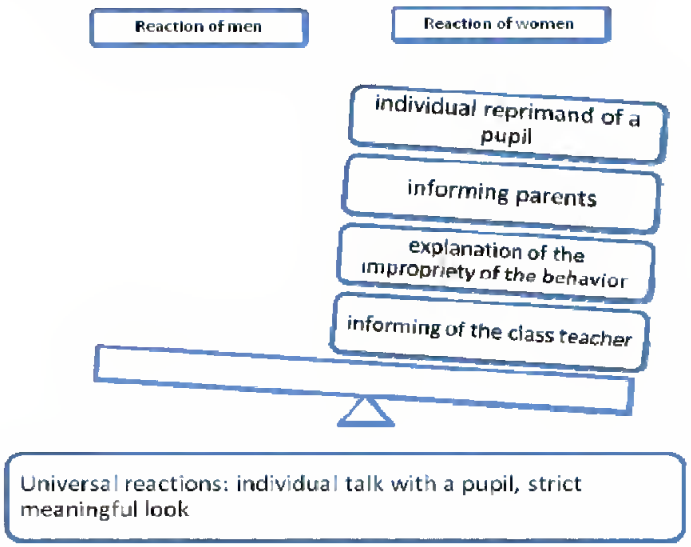

Reaction of men
Reaction of women
individual reprimand of a pupil
informing parents
explanation of the impropriety of the behavior
informing of the class teacher
Universal reactions: individual talk with a pupil, strict meaningful look

Fig 15. Behaves aggressively toward teachers and colleagues

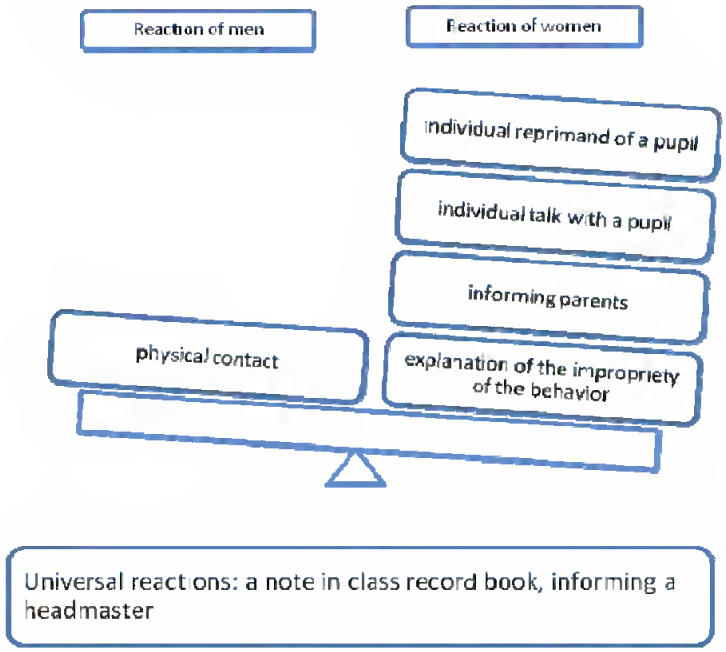
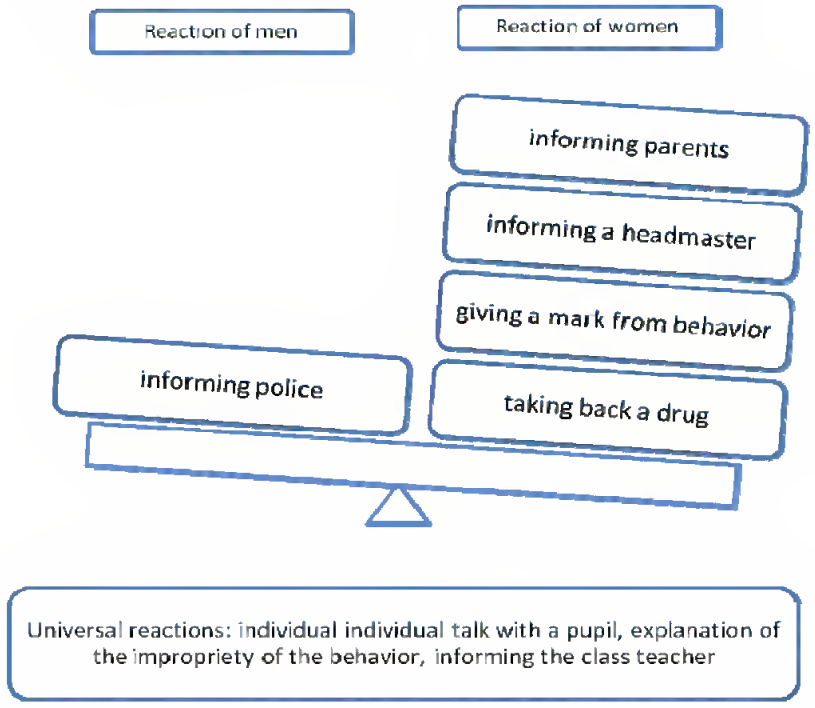

Reaction of men
Reaction of women
individual reprimand of a pupil
individual talk with a pupil
informing parents
physical contact
explanation of the impropriety of the behavior
Universal reactions: a note in class record book, informing a headmaster

Fig 16. A pupil drinks alcohol and takes drugs


Reaction of men
Reaction of women
informing parents
informing a headmaster
giving a mark from behavior
informing police
taking back a drug
Universal reactions: individual individual talk with a pupil, explanation of the impropriety of the behavior, informing the class teacher

Discussion and Conclusion

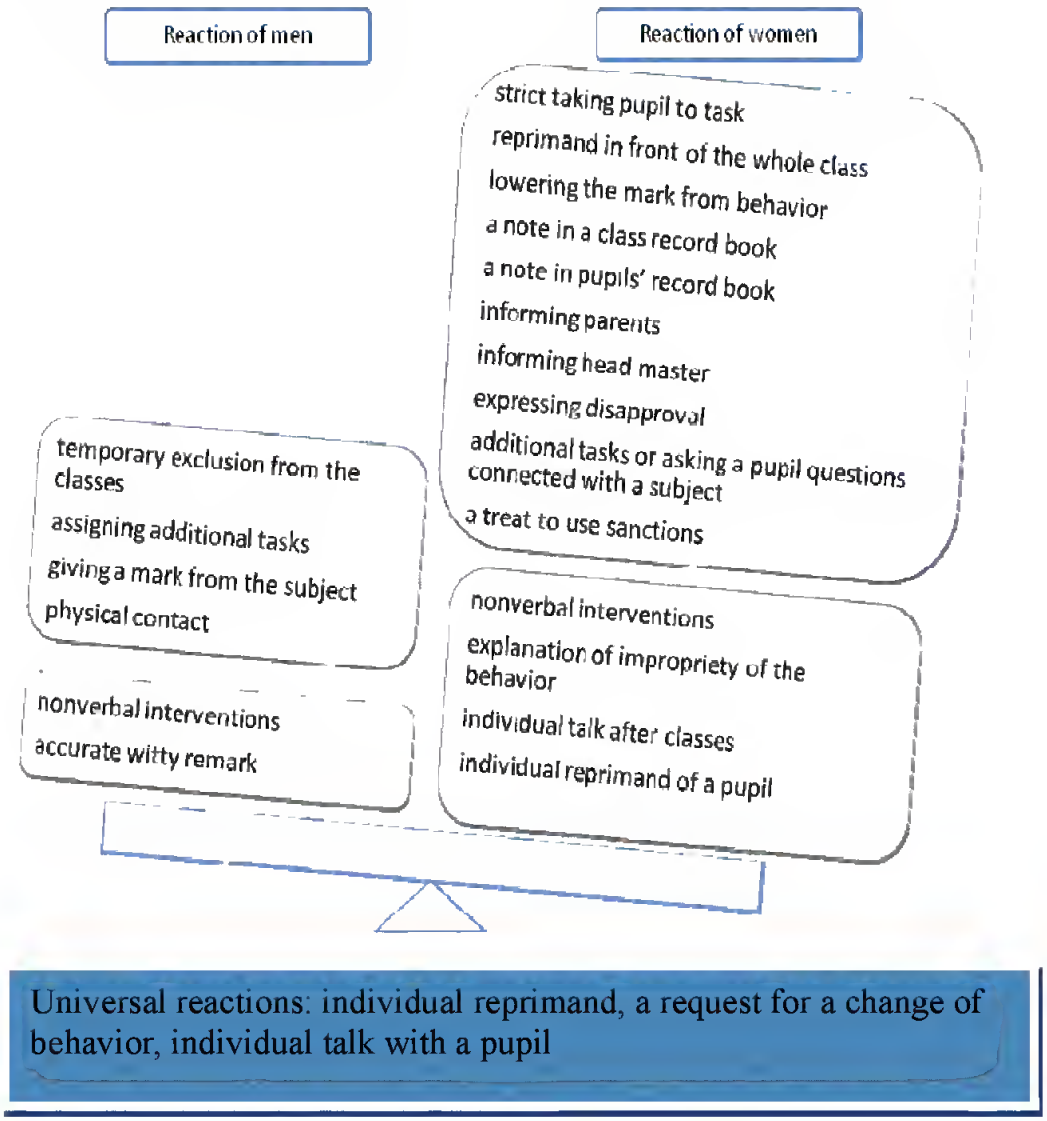
Presenting the results of the research without the division for the educational areas, the teachers' interventions have been presented in the final figure number 17. Reactions of the teachers of both specializations have been shown according to increasing aversion. From short reactions, with a small degree of severity (at the bottom of the figure) for a pupil to those with a big degree of severity and aversion.

As can be presumed from the research (fig 17), women in all educational situations react more often than men do. Men, in most of the situations give a mark from the subject (it can be guessed that they are PE teachers, thus only this specialization has that kind of privilege), comment the situation in a witty way or temporary exclude a troublemaker from classes. (a privilege of PE teachers)

Women, on the other hand, more often inform the class teacher, reprimand pupils, inform parents or headmaster, make the notes in a class record book and express strong disapproval. In that way, they use universal disciplinary reactions.

What is interesting, the most sanctions used by women are those of a high level of severity for the pupil, e.g. a request for a status punishment, lowering a mark from behavior, informing parents and head teacher etc. Moreover, women more frequently use verbal reactions which are very emotional e.g. expressing the disapproval in front of the whole class, strict taking pupil to task, reprimand in front of the group, a threat of using severe sanctions.

Fig 17. The main differences between sex according to the frequency of usage without educational areas division.


Reaction of men
Reaction of women
strict taking pupil to task
reprimand in front of the whole class
lowering the mark from behavior
a note in a class record book
a note in pupils' record book
informing parents
informing head master
expressing disapproval
additional tasks or asking a pupil questions connected with a subject
a treat to use sanctions
temporary exclusion from the classes
assigning additional tasks
giving a mark from the subject
physical contact
nonverbal interventions
explanation of impropriety of the behavior
individual talk after classes
individual reprimand of a pupil
nonverbal interventions
accurate witty remark
Universal reactions: individual reprimand, a request for a change of behavior, individual talk with a pupil

Answering the research question number 2 (Does sex of teachers influence the type of disciplinary reactions used?), it can be stated that sex influences the type and frequency of disciplinary reactions used.

Verifying the H1 hypothesis, it can be stated that sex differentiate the type and frequency of disciplinary reaction used, however at the same time there are universal reaction used by both groups.

More strict reactions of women can be results of the following reasons:

The first one is the fact that women are certainly more emotional that men are. During problematical situations women use emotional reactions which aimed

at regulation of emotions not at its working. As a result, women react on a pupil's behavior more aversive than men do or reaction not adequate to the problem.

The researches of Nicole Bouchet (Bouchet i wsp. 2001), who was working on socio- cultural influence on women and men functioning, are the prove of this theory. The author was examining men and women taking their psychological excitability into consideration. She stated that women are more emotionally motivated than men. They feel the connection with the environment more strongly and tent to be empathic. Men, on the other hand, are more intellectually motivated. They have strongly built cognitive curiosity, bigger inquisitiveness and a will to act. As a reason for that the author sees the difference women and men are brought up. This matter was also considered by other authors (Fontana 1998).

Another reason for the different type of the reactions is the ability to cope with stress.

Spanish researchers Serrano, Moya-Albiol and Salwador, (Serrano and wsp. 2008) search for the felt professional stress and sex of a person. The have been examining the teachers of both sex and the same experiences and level of going stale. The researches prove that women are more prone to stress connected with work than men do. A reason for that situation the experts see in that fact that men keep a distance to their professional duties and consequently do not feel frustration. A distance of that kind enables a bigger emotional balance in relations with students but can also lead to situation in which pupils are treated like a thing.

For that reason, women may react more strict than men in case of dysfunctional situations.

The important factors influencing the type of reactions used can be the length of experience and the age of a person. It seems, that the younger a female teacher is the most severe reactions are chosen. It can be a consequence of a lack of self confidence and professionalism in comparison with older teachers.

The element differentiating the types of reactions can be a sex of pupils as well. Presumably, some teachers can react differently in case of male and female pupils.

Inseparably of the reasons for that kind of situations, it can be stated that the sex of the teachers influences the type and frequency of reactions used. Women intervene more often and despite the fact that they get more results at emotional intelligence, their reactions have aversive character.

Conclusion to the theory

In the research of the disciplinary reactions of the various specializations teachers used a Teachers' Reaction Questionnaire as a research tool.

The usefulness of this tool was verified by a pilot study. This tool enabled to examine the disciplinary reaction without the need to introduce the outside observer, with the guarantee of the anonymity. It is extremely important due to the fact that the lack of anonymity could result in insincerity of the answers given. Moreover, the introduction of the observer could change the way a teacher reacted

in a situation of discipline problems as well as the behavior of the pupils might varied. Consequently, this is very useful tool to check the disciplinary reactions of the teachers during the lesson as well as other places where teachers come into contact with pupils. It needs to be updated with new pupils' reactions, which has lately appeared, and are connected with the latest technology usage.

It seems that this tool can be used in further examination and monitoring of the school discipline and the methods o its maintenance.

Practical conclusions

The knowledge of the pupils' behavior, which can cause disciplinary problems, has a great practical applications. The more the teachers know about the potential problems with the pupils behavior, the better prepared they are for the unexpected situations.

On the other hand, the knowledge of the usefulness of the possible disciplinary reactions can come to be handy. The scope of the reactions, despite the fact that the autonomy of the teacher is constantly limited, is wide and gives the choice of an appropriate reaction depending of the type of situation and the character of teacher or pupils. The teachers' interventions, the research shows, can be divided into universal and social reactions used more or less often depending of the specialization of the teacher and the type of the educational situation.

The ability to adjust the reactions to the particular variables enables a teacher to choose an appropriate set of interventions to the situations. The personal character, temperament, emotional intelligence and the style of managing the class should be taken into consideration. The knowledge of that kind would certainly enrich the professional workshop of the teacher by new experiences, competences and ability to deal with the classes and above all would help to build the effective discipline during the lessons. Consequently, the results of the educational program will certainly bring fruits.

The crucial problem in Polish schools is that they are feminized (chart no.1). As Kurzępa (Kurzępa 2006) stated, this situation has certain social consequences. That situation has a detrimental effect on boys socialization.

The majority of women, (Poraj 2010) in a teaching profession is a consequence of the fact that this profession requires qualifications in social relations which are typical form women. And consequently, it can be a source of their satisfaction in social and private spheres. Contrary, being a teacher is not attractive for men due to the fact that they search for adventures, competition, appropriate salary and success. As long as the social and financial status of this profession will not improve the number of men deciding to teach will not increase.

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Influence of an annual training in physical on physical fitness of the first professional privates

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Key words: motor efficiency, private, physical education, military

Abstract

Introduction of professional military service forced the need for changes in training programs and adapting them to the requirements of professionalization. An average fitness is required from a soldier, depending on the specialty, which is complex characteristic depending on many factors. Physical fitness has always been, is and will be an integral part of military training for each soldier and army. It is regarded as an indicator for the level of physical education.

The main objective of this study is to determine the level of change of a comprehensive physical fitness under the influence of programm content carried on the annual military training. Actualization of this objective is combined with the answers to the following questions:

- different levels of a comprehensive physical fitness of soldiers in various military units;
- opinion of the first professional soldiers about the importance of physical activity and physical education in the process of training in the army.

Research material was collected in 2009 and in 2010. 130 men aged 19 - 28 years were tested, with an average age of 23.2 years. An examination of physical fitness took place at the beginning of their professional military service and one year after the first test. The measurement was made on a group of soldiers from three military units: Land Forces Training Centre in Poznan (45 soldiers), 16th Battalion in Jarocin Airports Repair - MU 3918 (25 soldiers) and 6th Air Assoult Brigade in Krakow - MU 4495 (60 soldiers). The tested population represents 30% of the privates.

After analysis of the material the following conclusions can be drawn:

- under the influence of training program, after one year service, the first professional soldiers have achieved better results in the second study;
- physical fitness of that group is better comparing to the other teams;

- awareness of soldiers on the importance of physical education in the training process is high, up 83.85% of respondents declare that participation in activities organized by the military.

Measurement and control of physical fitness can verify the effectiveness of education systems, allows to draw conclusions and make appropriate amendments to training programs.

Admission

Introduction of professional military service made the need for changes necessary in training programs and adapting them to the requirements of professionalization. The new program assumptions define three stages of training:
- 1st year - improving the skills of individual soldiers and team training (cooperation);
- 2nd year – preparing soldiers to participate in operations outside the country, performing tasks in accordance with the specific purpose of the mission;
- 3rd year – participating in military operations abroad, training, maintaining ability and readiness to act.

Each stage is divided into several areas of training focused on the detailed aspects of the soldiers activities (Lamla 2010).

Changes in the Polish Armed Forces make to highlight the procedure for appointment to the professional military service. One of the main criteria required for the professional soldier is a high physical fitness (Daugherty 2000). Physically fit soldier can perform the tasks in all conditions (Zaloga 1995). He must be characterized by professionalism in combat skills and ability to use the modern military technology, handling military equipment, resistance to mental and physical exhaustion (Shillingford 2001).

From any soldier, depending on the specialty, an average fitness is required, which is very complex characteristic, depending on many factors. Physical fitness has always been, is and will be an integral part of military training each soldier and army. It is regarded as an indicator for the level of physical education (Kszak, Sterkowicz 2001). Adequate psychophysical preparation is required from the soldier who must be ready to act in the modern battlefield. This requirement can be fulfilled only by a soldier who is thoroughly trained, physically fit, with the appropriate characteristics of character, disciplined and aware of his tasks (Pillars 2002).

There are so many definitions of physical fitness, and each in its own way is justified. Zdzislaw Chromiński believes that physical fitness is a group of factors of an endogenous and depends on human characteristics, such as motor abilities, constitution of somatic, fitness of the human senses, temperament and proper body proportions, as well as the external environment and lifestyle (Chromiński 1981). Physical fitness consists of speed, flexibility of the spine (maximum flexion), strength, agility and strength. These various components evolve with age and reach optimal levels in different years (Osinski 1990). Zygmunt Gilewicz as physically

fit people, considers people who are strong, fast, skillful, resistant to fatigue, agile in motor activities, regardless of body structure and regularity of development (Gilewicz 1964).

Aim

The main objective of this study is to determine the level of the change the physical fitness under the influence of a training implemented after the annual military training. Determination of this objective is combined with the following details:

- different levels of a comprehensive physical fitness of soldiers in various military units;
- the first professional privates knowledge on the importance of physical activity and physical education in the process of soldiers training.

Material and research methods

Material was collected in 2009 and in 2010. 130 men aged 19 - 28 years were tested, with an average age of 23.2 years. Privates physical fitness was checked at the beginning of professional military service and one year after the first test. The measurement was made on a group of soldiers from three military units: Land Forces Training Centre in Poznan - LFTC (45 soldiers), 16th Battalion in Jarocin Airports Repair - MU 3918 (25 soldiers) and 6th Air Assault Brigade in Krakow - MU 4495 (60 soldiers). Tested population represents 30% of the privates. Soldiers of logistics, armored and mechanized troops in the following specialties: infantry, electromechanical, driver IFV (infantry fighting vehicle) were examined in the Land Forces Training Centre. Privates of 16th Battalion Airport Repair from Jarocin with specialization: driver, operator, maintenance of airports. However, soldiers from 6th Air Assault Brigade commandos are in specialty: shooter, mortar crew, operator of PPK (anti-tank guided missile).

To assess the level of physical fitness in sports or recreational activities, tests are most often used. Their task is to measure the level of overall performance characteristics of the organism or executed motor, and the changes that have occurred in the mobility of the person exercising after a certain period (Marcinkowski, Sokolowski 2004). To assess the physical fitness level, the test for professional soldiers was used (Journal of Laws of 2010. No. 27, item. 138).

Physical Fitness Test:

- Run the 3000m - in sports clothes on a track, road or other hard surface (about equal to the sum of field gradients). The way of conducting: series (groups) at the time. The group should count up to 30 soldiers. At the command "start" or signal, the group of soldiers will run. Time is measured to an accuracy of one second from the start signal to the crossing of the finish line.
- Pulling on the bar (high bar) - takes place in a sports clothes. The minimum height of the bar - 220cm. At the command "ready," the soldier carries a shoulder overhang, upright in the elbow - starting position. At the command "Exercise" pulls up so that the chin was above the bar and returns to the starting position, then

repeats exercise. The evaluator shall give the number of pull ups loud. If the soldier does not perform exercises as described, for example, do not bend to the required position or returns to overhang the shoulders straightened in the elbow, he reached the last number of repeats.

- Shuttle Run 10x10m - held in sports clothes. At the command "start" (beep), the soldier begins to run toward the opposite flag, it departs, returns to the flag at the starting line, rounded it, and does this route five times. Falling the flag, means repetition of exercise, this is the final attempt. Time is measured to an accuracy of 0.1 seconds from the start signal to the crossing of the finish line.
- Bends forward at the time of 2 minutes - takes place in a sports clothes. At the command "ready," the soldier takes position: lying on his back with hands clasped and fingers aligned with the back of the head, shoulders touching the mattress, legs bent at the knee joints (maximum up to 90 degree angle), foots on the hips width apart, may be hold by other soldier or hooked on the bottom rung of the ladder. At the command "Exercise" engaged in a bend in the front, while the elbows touch the knees immediately returns to lying in order to allow the crossing fingers on the head to contact with the ground (first repeat). When performing exercises it is not allowed to lift the hips from the floor. Evaluator counts sequentially number of correctly performed repetitions. If a soldier fails to exercise as described, for example, does not touch the knees or elbows, or in the starting position does not touch the shoulders and hands clasped fingers surface of the mattress, evaluator counts the last number of repeats.

In addition, a sociological survey was developed. It examined the relationship of physical activity, preferences and frequency of physical exercise, and the reasons for making physical activity and participation in physical education classes.

Test results

All study participants were in similar living conditions. Emphasis on physical and mental fitness was similar, and similar time to rest. The first test took place in the first month of their professional military service. Repetition of the tests and filling out the survey took place between 11 and 13 month of military service.
The results of examination of physical fitness test, are in tables divided for test I and test II, highlighting differences of individual events. Table 1 summarizes the characteristics of numerical arithmetic of the 3000m run. Individual time of run is in the range from 11.14 minutes to 20.30 minutes, while after the second study, from 10.53 minutes to 18.00 minutes. As a result of the annual training of all groups improved their performance, with an average time of 20 seconds better than the first test, of which the Land Forces Training Centre has made the best progress, with the result of about 37 seconds.

Table 2 compares the characteristics of numerical arithmetic of pull ups on the bar (high bar). As is clear from the carried test although in this examination, soldier improved the number of pull ups (by 1.03 repetitions) with an average of M = 9.60 repetitions. The minimum number is 0 and the maximum is 20 pull ups

repetitions. Definitely the strongest back muscles have commandos from MU 4495 with average result of M = 15.18 repeats.

Numeric Characteristics of 10x10 m shuttle run in the first study is average M = 31.2 seconds, and in the second study, ranges from 27.5 to 33.9 seconds with an average M = 31.1 seconds. Also in this case, the soldiers have better result after one year of training. The fastest soldiers were from the MU 4495 with an average time M = 30.6 seconds. Only respondents from LFTC reached worse time of 0.1 seconds compared to the first test.

Table 4 shows the characteristics of numerical arithmetic mean of crunches. Once again, it appears that after one year training soldiers reached better results (about 2.13 repetitions). In the first study, the soldiers made from 23 to 83 repetitions of crunches with an average of M = 54.44. In the second study, quantity of this exercise were within the limits from 65 to 87 repetitions. The average of all respondents in the second study is M = 56.57 repeats. In this competition the best progress made soldiers from the MU 3918.

As a result of the analysis of comparative data, it was found that a professional privates score similar results to the other teams, whose characteristics are summarized in Table 5. They achieved better results in tests of physical fitness in the competitions: 3000 m run, the bends on the bar (high bar), crunches. Only in the competition 10x10m run, respondents obtained worse results comparing to the other groups.

Table 1. Characteristics of numerical arithmetic 3000m run (time - minutes).

		I study		**II study**		**Difference between I end II study**
Military Unit	**N**	**MIN – MAX**	**M**	**MIN – MAX**	**M**	
LFTC	45	12,45 – 20,30	15,12	12,28 – 17,30	14,35	- 0,37
MU 3918	25	12,46 – 20,00	15,50	11,28 – 18,00	15,38	- 0,12
MU 4495	60	11,14 – 13,58	12,48	10,53 – 14,44	12,39	- 0,09
TOTAL	**130**	**11,14 – 20,30**	**14,37**	**10,53 – 18,00**	**14,17**	**- 0,20**

Table 2. Characteristics of numerical arithmetic pull ups on the bar (number of repetitions).

		I study		**II study**		**Difference between I end II study**
Military Unit	**N**	**MIN – MAX**	**M**	**MIN – MAX**	**M**	
LFTC	45	0 – 11	5,89	0 – 13	6,35	+ 0,46
MU 3918	25	0 – 11	6,28	0 – 12	7,28	+ 1,00
MU 4495	60	10 – 20	13,55	10 – 24	15,18	+ 1,63
TOTAL	**130**	**0 – 20**	**8,57**	**0 – 24**	**9,60**	**+ 1,03**

Table 3. Numeric Characteristics of numerical arithmetic of 10x10m shuttle run (time - seconds).

		I study		II study		Difference between I end II study
Military Unit	**N**	**MIN – MAX**	**M**	**MIN – MAX**	**M**	
LFTC	45	28,6 – 33,3	31,0	29,7 – 33,2	31,1	+ 0,1
MU 3918	25	29,7 – 34,0	31,6	29,4 – 33,3	31,5	- 0,1
MU 4495	60	28,1 – 32,9	31,0	27,5 – 33,9	30,6	- 0,4
TOTAL	**130**	**28,1 – 34,0**	**31,2**	**27,5 – 33,9**	**31,1**	**- 0,1**

Table 4. Characteristics of numerical arithmetic crunches (the number of repetitions).

		I study		II study		Difference between I end II study
Military Unit	**N**	**MIN – MAX**	**M**	**MIN – MAX**	**M**	
LFTC	45	31 – 51	46,07	30 – 60	47,00	+ 0,93
MU 3918	25	23 – 55	46,68	27 – 60	49,44	+ 2,76
MU 4495	60	60 – 83	70,57	65 – 87	73,27	+ 2,70
TOTAL	**130**	**23 – 83**	**54,44**	**27 – 87**	**56,57**	**+ 2,13**

Table 5. Comparative physical fitness.

Test / **Team**		**Run 3000m**	**Pull ups on the bar**	**Run 10x10m**	**Forward bends**
Professional privates	I study	14,37	8,57	31,20	54,44
	II study	14,17	9,60	31,10	56,57
Military Police*		15,01	6,89	30,46	unknown data
Conscripts**	I study	unknown data	5,10	unknown data	35,70
	II study	16,06	6,80	unknown data	39,30
NCO Candidats ***		14,86	7,04	30,60	unknown data

*(Thomas 2001), **(Rybacki, Mierzejewski 2003), ***(Emert 2002)

For presentation of the results obtained by the respondents, the table is divided in to three teams by military units, the percentage results obtained by the first professional privates (Table 6). On the question of sport discipline practiced 73.99% of respondents answered that they are grown or cultivated sports discipline. The most predominant response that discipline is practiced sports games (55.80%), especially football (82.70%). Respondents also highlighted strength sports (28.20%) bodybuilding (64.87%), weightlifting (31.23%), athletics (16.0%), and especially jogging (91.40%). Taking into account the formation of physical activity, the soldiers said that their relationship was largely formed by fellow students (27.71%). However, the question of participation in physical education

classes, the respondents are involved in this project to 83.85%, and participation in exercises outside of the program declares 96.25% privates. The soldiers contribute to the physical education classes for pleasure (60.56%), which prefer team sports games (39.00%) and fitness (31.54%). 0.97% of respondents chose other classes, where 100% meant the combat sports. Only 2.32% of the respondents do not know why it takes part in the classes.

Table 6. Characteristic Percentage (%) sociological surveys.

Team / Question of sociological surveys	LFTC Poznan	MU 3918 Jarocin	MU 4495 Krakow	TOTAL
Do you practice any sport?				
Yes	46,23	45,12	64,00	**51,78**
No, but I did in past	27,04	19,05	20,53	**22,21**
No	26,73	35,83	15,47	**26,01**
My attitude towards sports was mainly shaped by:				
Parents	14,53	30,24	17,90	**20,89**
Siblings	17,92	3,83	8,44	**10,06**
Superior	7,67	2,02	9,81	**6,50**
Teacher of phisical classes	11,32	21,49	24,72	**19,18**
Class mate	34,71	25,33	23,08	**27,71**
Others persons, institution or events	13,84	17,08	16,06	**15,66**
Besides obligatory practice I additionally practice sports a week:				
4 and more	25,75	20,98	28,35	**25,03**
2-3 times	47,47	55,66	61,88	**55,00**
1 time	15,52	23,36	9,77	**16,22**
Never	11,26	0,00	0,00	**3,75**
I take part in the sports activities organized by the unit:				
Yes	74,68	81,00	95,86	**83,85**
No	25,32	19,00	4,14	**16,15**
I take part in the sports activities organized by the unit because of:				
Duty	6,90	8,77	3,33	**6,33**
Pleasure	59,86	64,43	57,39	**60,56**
Health advantage	27,00	26,07	39,28	**30,78**
I do not know	6,24	0,73	0,00	**2,32**
During the physical exercises I prefere the most:				
Team games	38,36	46,63	32,01	**39,00**
Gimnastic	2,51	6,64	3,11	**4,09**
Athletic	12,89	10,99	21,37	**15,08**
Swiming	7,63	7,02	13,30	**9,32**
Bodybuilding	38,07	28,71	27,85	**31,54**
Others	0,54	0,00	2,36	**0,97**

Summary and conclusions

The analysis of the material, gives the following conclusions:

1. As a result of implemented program of the annual military training, the first professional privates have achieved better results in the second test.
2. In terms of individual military units, only LFTC in 10x10m run competition did not made progress. Definitely the best comprehensive physical fitness have soldiers from the MU 4495. Taking into account the level of progress in specific trials, the highest progress in 3000 m run made LFTC, in 10x10m run and pull ups MU 4495, but w forward bends MU 3918.
3. Physical fitness of the tested group of professional privates is better than the results gained by the other teams. Only candidates for non-commissioned officers perform better in competition speed – agility (10x10m).
4. Soldiers awareness of the importance of physical education in the training process is high, up 83.85% of respondents declare participation in activities organized by the military.
5. Attitudes to the physical activity has been largely shaped by colleagues.

Professionals privates who have replaced soldiers of compulsory military service, are men with higher levels of comprehensive motor skills. They are volunteers who pass physical test and only the best get into military service. The decision to introduce a professional army, ensures appropriate selection and high physical fitness level of that group is not surprising (Seredynski 2010). Explaining the differentiation in results of the individual competitions, it is probably due to the implementation of the training process, adequate for a specific military branch. For example armored troops and artillery, the main emphasis is put on shaping force, and in mechanized units there are preferred soldiers with high endurance, who are able for long-term work (Drozdowski, Majewska, Sokolowski 2006). In this case, we are dealing with typical Army privates, Air Force military technical personnel providing assistance to airports and commandos, the best soldiers in terms of comprehensive motor skills who have a higher level qualification for the appointment of professional military service. The diversity of needs in relation to the established specialties can be made in order to shape properly the physical ability, can be set to perform specific military tasks, sporting achievement or health. Despite this, it is impossible to isolate one-way impact on the soldier (Osinski 2003).

There is no doubt that the measurement and control of physical fitness of the privates allows to verify the education systems efficiency, draw conclusions and make appropriate amendments to training programs.

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Tourist education based on selected middle schools youth in Wrocław

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Key words: tourist education, syllabuses drawn up by individual authors, middle schools youth

Abstract

This paper aims at diagnosing tourist education realized during classes called "outside the school bench". The research was carried out in two Wroclaw middle schools chosen randomly, which according to researches had the most interesting tourist education syllabuses. The research applied a diagnostic survey using the technique of surveying students and teachers and the technique of interviewing teachers who carry out tourist education syllabuses drawn up by individual authors.

The research results present the school's offer proposed as part of tourist education included in syllabuses drawn up by individual teachers as well as opinions about realization of these tasks among middle school youth. The paper presents opinions of students who take part in "outside the school bench" tourist education in selected schools.

When interpreting the research results and teachers' opinions one may conclude that a lot of students are not interested in tourism because tourist classes consist of students who failed to be admitted to preferred classes so there is inconsistency of objectives. Despite this fact, students value tourist lessons positively though there are also some negative opinions in the research carried out.

The results indicate the necessity of continuous quality improvement of lessons run by school teachers as well as those taught by other entities hired by the school.

Introduction

Tourist activity at school should be considered with regard to its complexity and dynamic character. It has several functions which influence its comprehensive development and merge with each other.

The crucial ones, and at the same time most frequently referred to in the literature, are pedagogic, educational, recreational, health as well as cultural functions.

Presently the importance of teaching school students to be able to make good use of their free time has been stressed. Tourism offers great cognitive potential in

particular when brought to schools in the form of sightseeing activities. Tourist classes may encourage students' interest in art, culture and nature (Fąk 2004).

Tourist education is aimed at preparing young people to benefit from tourism on their own. They should be ready to participate in basic recreational activities, learn about geographical regions and their qualities. Having completed their tourist education students are expected to be able to organise tourist activities, both for themselves and for their peers. Tourist education should make adolescents understand the advantages and benefits of related activities (Denek 2006).

Realising the advantages of travelling and sightseeing, on 8 November 2001 the Ministry of National Education issued a directive to establish the conditions and modes of tourist and sightseeing activities organised in public and private kindergartens, schools and other educational institutions. The directive introduced a fundamental division into the following forms of child and youth tourism:

- ~syllabus-related trips – initiated and organised by teachers as a supplementary activity within the obligatory syllabus in a given subject or related subjects
- ~sight-seeing trips which require neither physical preparation nor particular skills
- ~sightseeing and tourist events such as camps, contests, tournaments
- ~"qualified" (active) tourist events and camping trips which require proper physical preparation and special skills including the ability to use professional equipment
- ~outgoing events associated with the class syllabus, such as green, white and ecological schools. (Directive of the Minister of National Education and Sport of 8 November 2001, Journal of Laws No. 135-10539 Item 1516 on the conditions and modes of tourist and sightseeing activities organised in public and private kindergartens, schools and other educational institutions).

School will encourage setting up special interests groups dedicated to travelling and sightseeing. Classes specialising in tourist activities are established as well. Several school-based organisations focus their efforts on promoting tourism. Social organisations and institutions such as PTTK (Polish Tourist Association), PTSM (Polish Youth Hostel Association), ZHP (Polish Scouting Association), SKKT (School Tourist Group) or School Geography Circles contribute substantially to the discussed educational processes. Nevertheless, students seem not to be involved for many reasons. Quite frequently young people do not feel like taking part in any form of tourist activities at school (Fąk 2000).

Child and youth tourism will facilitate moulding personal features of character such as resourcefulness and self-confidence, prevent negative influence of modern civilisation and improve one's general physical condition.

All natural environment elements are of key priority in terms of health: sun – facilitates vitamin D production reinforcing the immune system and increases the amount of haemoglobin in the body; forests – essential and antibacterial oils support human respiratory system and contribute to mental regeneration of the organism; sea – provides tourists with healing sprays advantageous to the

respiratory tract; mountains – influence general improvement of health (Łobożewicz 1984).

"Outside school desk" activities provide students with the opportunity to observe directly facts and phenomena as well as to meet people in their personal and professional environment. "Outside school desk" the students are able to improve their knowledge and hone hands-on skills. Particular subjects may be interrelated thus making the knowledge acquired complementary across various areas. "Outside school desk" young pupils tend to show more interest in the surrounding world and pick up new knowledge in a natural way (Denek 2002).

The activities may have several forms. Open air lessons, one-day outings and longer trips, walks, bivouacs, green and white schools as well as camps are the most popular. Students actively engage in such activities and the educational process at the same time, they acquire not only the knowledge obligatory at the certain level of education but also several useful skills. When finding themselves in a different environment students are given a chance to get to know each other better and to use the new surrounding to study and work more efficiently. "Outside school desk" activities are often aimed at group integration. Integration trips arranged at the beginning of the academic year are perceived as an important element of contemporary leisure education (Fąk, Kaik-Woźniak 2007).

Objectives of the research

The paper presents the research on the school tourist education delivered "outside school desk". The study provided a detailed picture of basic relationships between school and tourist activities. The problem is investigated in terms of promotion of tourism and using it in the process of leisure education at school.

The authors focused on the diagnosis of activities in selected Wrocław middle schools in terms of tourist education as well as on the assessment thereof based on the opinions expressed by teachers – authors of the original programmes – and the students.

The following research questions were asked:

1. Do the selected middle schools have classes specialising in tourist education or related subjects? What is the syllabus?
2. What tourist activities are delivered "outside school desk" and how are they assessed by teachers – authors of the original programmes – and the students?
3. Does tourism education relate to students' outdoor activity?
4. To what extent are middle school students involved in the "outside school desk" activities? Which are the preferred forms of the activities?
5. What is the middle school students' approach to tourism?

Research material and methods

Diagnostic survey method has been applied in the research work. Opinion poll and survey questionnaire as well as interview tools along with the document analysis method have been used to collect information regarding tourism oriented

school programmes. The method of literature analysis and review has also been applied in the selected middle schools. The authors interviewed two teachers, authors of the original syllabuses dedicated to classes specialising in tourist activities, in particular in geography and tourism.

The research took place in the Cyprian Kamil Norwid Middle School No 5 and the European Union Middle School No 13 in Wroclaw. There the students enjoy an extended educational offer as both the schools have special interest groups dedicated to tourism and classes specialising in the area. 150 student respondents filled in the survey questionnaires (81 from the Middle School No 5 and 69 from the Middle School No 13).

Table 1. Respondent group

Research subjects	No	%
Middle School No 5	81	54.0
Middle School No 13	69	46.0
TOTAL	150	100.0

Research results analysis

Profile of selected schools and their activities in terms of tourist education

School selection was based on the information provided by the municipal Education Department in Wroclaw; it was also determined by the quality of the offer the schools dedicated to future students including particularly attractive syllabuses in the area of tourist education. Both institutions are proud laureates of the Tourist and Sightseeing contests held in Wroclaw.

Cyprian Kamil Norwid Middle School No 5 provides tourist education in a travelling and sightseeing circle, a geography circle, at the meetings of the League of Nature Conservation and the Friends of Wroclaw Group which invites all the students to join their Saturday trips. Moreover they arrange extra meetings on school days.

Original programme taught in the class specialising in geography and tourism in Cyprian Kamil Norwid Middle School No 5

The programme includes general assumptions and detailed syllabuses dedicated to classes specialising in geography and tourism. It is aimed at getting students acquainted with their cultural heritage and related values, developing one's own identity and making students sensitive to the surrounding cultural environment. It is supposed to encourage students to extend their knowledge on their region, their country and the entire world. It should get the students closer to tourist organisations (PTTK, PTSM). They are expected to establish co-operation with Friends of Wroclaw Association, Lower Silesian Social and Cultural Association, Wroclaw branch of PTTK and with the Group of Tourist Guides called Rzepiór. A

student will also gain the understanding of the importance of tourism in terms of state economy.

Furthermore, the programme is designed to develop active approach to recreation and environment protection, to help students comprehend the imperative of taking up tourism activities. School trips provide students with an occasion to gain qualified tourism badges. Students collect documentation (descriptions and photographs) in their class chronicle. They are also expected to expand their school tourism dedicated library with related publications (e.g. guides and publishings). Each form develops a consistent plan for their trip cycle.

The educational process assumes extra lessons dedicated to travelling and sightseeing (one hour per week in each class and an extra geography lesson in Forms One and Two). Special assignments proposed in the syllabus include organisation and active participation in Wrocław walking tours (one per month) and also trips in the region. Students are supposed to improve their awareness of environmental issues (protected flora and fauna, related legal aspects) and to take part in the subject-related contests and expeditions.

The subject matter includes for instance learning about the nature of travelling and sightseeing, early beginnings of Wroclaw, the history and historical places of the city, geographical regions in Lower Silesia, regional fauna and flora, National and Natural Landscape Parks in Lower Silesia, castles and fortresses, land use in terms of tourism, guiding trips – methods and techniques, etc.

Original programme taught in the class specialising in geography and tourism at the European Union Middle School No 13

The European Union Middle School No 13 is a big school with 870 students, most of them from outside the catchment area. The school offers several focused classes including the one specialising in geography and tourism and basing its syllabus on the original programme "Tours Across Lower Silesia, Poland and Europe" drawn out by two teachers.

The programme's objectives are improving students' general knowledge, uncovering one's own identity as well as developing an integrated portrayal of one's surrounding and providing middle school youth with the opportunity to stimulate their interest in tourism and geography. The knowledge is acquired and gradually extended – starting from Wroclaw and the vicinity through Lower Silesia presented against other Polish or European regions. Geography syllabus is based on the programme proposed by Wiking Educational Publishers supplemented with some extra elements.

Additional lessons dedicated to specific issues: Form One – one hour per week (geography of Wroclaw and the vicinity), Form Two – two hours per week (geography of Lower Silesia), Form Three – one hour per week (links between Lower Silesia and other regions). The students are also supposed to have one tourism lesson per week. The project assumes educational paths, close references to other school subjects (e.g. history, biology, physics, chemistry, music, foreign

languages, Polish, religious education and arts) as well as wider range of foreign language activities. It is aimed at extending students' knowledge on their own region, Poland, Europe and at gaining the ability to apply theory in practice. The programme lets students pick up methods and techniques of data collecting and interpreting and hone state-of-the-art skills of presenting own city and region.

It teaches how to observe the surrounding and find out relationships. Students enjoy an opportunity to learn how to organise expeditions and get acquainted with the activities of tourist organisations (PTTK, PTSM, „Perpedes") and may co-operate with the Friends of Wrocław Association and Lower Silesian Social and Cultural Association. They will also train how to use professional equipment and develop their sense of direction. School trips provide students with an occasion to gain tourist badges (GOT, OTP, Touring Badge). The school organises first aid courses and foreign language related classes.

The syllabus is designed to develop students' individual approach towards themselves and surrounding world. The authors also hope to reinforce relationships within the group and increase class integration. Teachers strive to propagate active relaxation, tourist education, building up physical fitness and health care. Participation in the project is going to facilitate the skills of handling difficult situations, developing the habit of good work manners, punctuality and ability to cooperate with others. The authors recommend introduction of two tutors in the programme. Proposed subject trip cycles: first two years – "green schools", third year – a trip abroad, Form One and Two – one-day expeditions (one per month on a school holiday) and two-day excursions (one per term; in Form One in Wroclaw and the vicinity, in Form Two Lower Silesia and adjacent Czech and German regions). The programme involves several hour syllabus related outings as well. Form Three students will take part in longer events such as 2-3 day long trips to selected regions across Poland and in special tours (related to tourist activities, e.g. a visit at a travel agency or at the airport).

Extra geography lessons are dedicated to wide range of subjects such as geographical location of Wrocław relative to Lower Silesia, Poland and Europe, fauna and flora in the immediate surrounding, natural environment, increasing role of services in the city's economy, Wroclaw – a major tourist Centre in the country, Wrocław – a cultural and academic centre, position of the city relative to Poland and Europe in the past and nowadays, landscape diversity in the region, landscape protection – national and natural landscape parks, nature reserves, tourist attractions in Lower Silesia, travel geography in Poland, presenting the region's role in Poland and uniting Europe, etc..

Extra tourism lessons include subject matter referring to history of tourism, and organisation of tourist activities in Poland; safety rules during the expeditions, special skills, learning about travel geography of Lower Silesia, tourist and sightseeing school organisation – taking care of school trips and tourist events, tourist attractions in Wrocław and the vicinity, travelling in Poland, etc..

Survey results analysis

Interview with a teacher of the original tourist education programme taught in Cyprian Kamil Norwid Middle School No 5

According to the author the tourist education programme is pursuing its assumptions. Classes specialising in geography have extra hours dedicated to tourism and sightseeing related issues. Additional sightseeing trips are organised under the programme. School tourist activities involve monthly Saturday expeditions available to all the school students. Unfortunately, not all the students of the specialised class show interest in tourist issues contrary to their peers from other forms who actively participate in the trips organised. The class pupils often seem to have been admitted to study geography and tourism only because they had failed exams to their first choice classes so their selection resulted from a chance decision. Monthly Saturday expeditions are likely to attract ca. 30 participants. The trips are popular with students coming from classes of all sorts. The school offers excursions during winter break, however neither stationary nor hiking camps are organised in summer vacations when the school is more likely to make their students take advantage of events organised by professional tour operators (trips, camps).

Interview with the authors of the original tourist education programme taught in the European Union Middle School No 13

According to the authors the tourist education programme is pursuing its assumptions. Students have extra hours dedicated to tourism and sightseeing related issues. The programme involves extra expeditions each month on Saturday with all the school students invited. Nevertheless, the authors wish the students got more involved in the syllabus-related activities. Some of them seem reluctant to participate as the classes specialising in tourism and geography often take students not necessarily interested in the subject matter. They usually had applied to be admitted to their first choice classes but having been rejected decided to enrol to the class specialising in tourism and geography which actually failed to stir up their interest. The school has no tourist offer for winter or summer holiday. Pupils have an opportunity to develop their interest in travelling and sightseeing through active participation in dedicated contests.

Opinion of student respondents about tourist education

As mentioned above only selected students in the classes specialising in geography or tourism show particular interest in the subject matter. In middle school No 5 pupils attending almost half of the classes (43.2%) are in the majority. The same groups of students (22.2% each) participated in half of the school activities or did it sporadically – Chart 1.

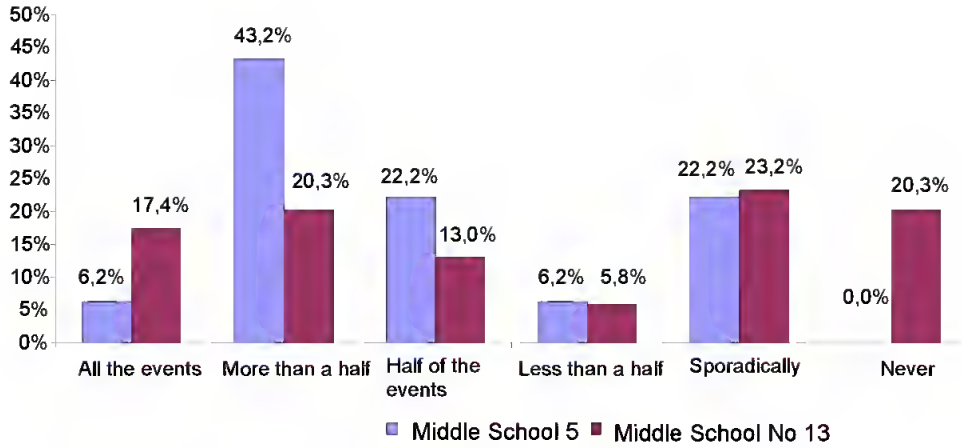

Chart 1. Middle school students' participation in tourist activities at school

In middle school No 13 pupils participating in tourist activities once in a while (23.2%) are in the majority, those who refuse to do it and the ones who attend almost half of the events account for 20.3% each. The smallest group (5.8%) include the students who take part in less than half of the activities.

The fact of greater students' involvement in Middle School No 5 is worth noticing. This may be due to better communication among the school society. Teacher organisers travelling and sightseeing events will do their best to provide pupils with up-to-date information and invitation.

Most frequent events in both schools are one-day outings (Middle School No 5 – 27.9%; Middle School No 13 – 25.5%). Middle School No 5 students more frequently declared their participation in one-day outings, longer trips and green schools while the others preferred bivouacs, cycling tours, hiking trips, white schools and canoe expeditions – Chart 2.

Admittedly, Middle School No 5 does not offer bivouac or canoeing events to their students therefore they have not reported such activities in their answers. Middle School No 13 organises canoeing activities on the Oder River and other waterways in Lower Silesia.

All things considered, both schools choose one-day trips as the most frequent form of tourist activity; they are followed directly by green schools and then by syllabus-related expeditions and many-day-trips. The remaining proposals were declared quite sporadically, which indicates students' slight interest.

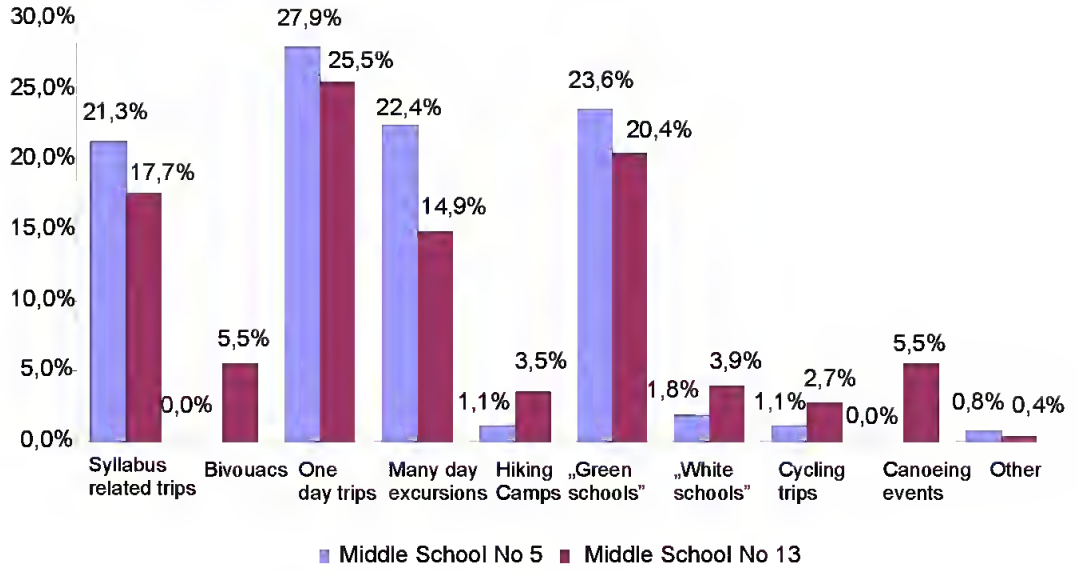

Chart 2. Forms of tourist activities in the selected schools

Subject schools hardly ever decide to organise a "white school" for their students. Instead, they are presented with commercial or institutional proposals prepared for young people during winter holiday. The schools also would make an attempt to organise cycling tours, yet they abandoned the idea due to poor response from the students (teachers' opinion) – Chart 3.

Most respondents from Middle School No 5 declared that many day "green schools" will be most popular with the students (30.6%) while Middle School No 13 respondents chose one day trips as their most favourite activity (29.2%). Respondents representing the Middle School No 13 reported „green schools", one-day trips (23.4% each) and syllabus-related outings (15.3%) as their most favourite activities whereas respondents representing the Middle School No 5 would rather prefer many day excursions (27.8%), one day trips (26.7%) and syllabus related outings (11.6%). Admittedly, middle school No 5 does not offer canoeing events to their students therefore they have not reported such activities in their answers. Middle School No 13 has canoeing activities on the Oder River and other waterways in Lower Silesia.

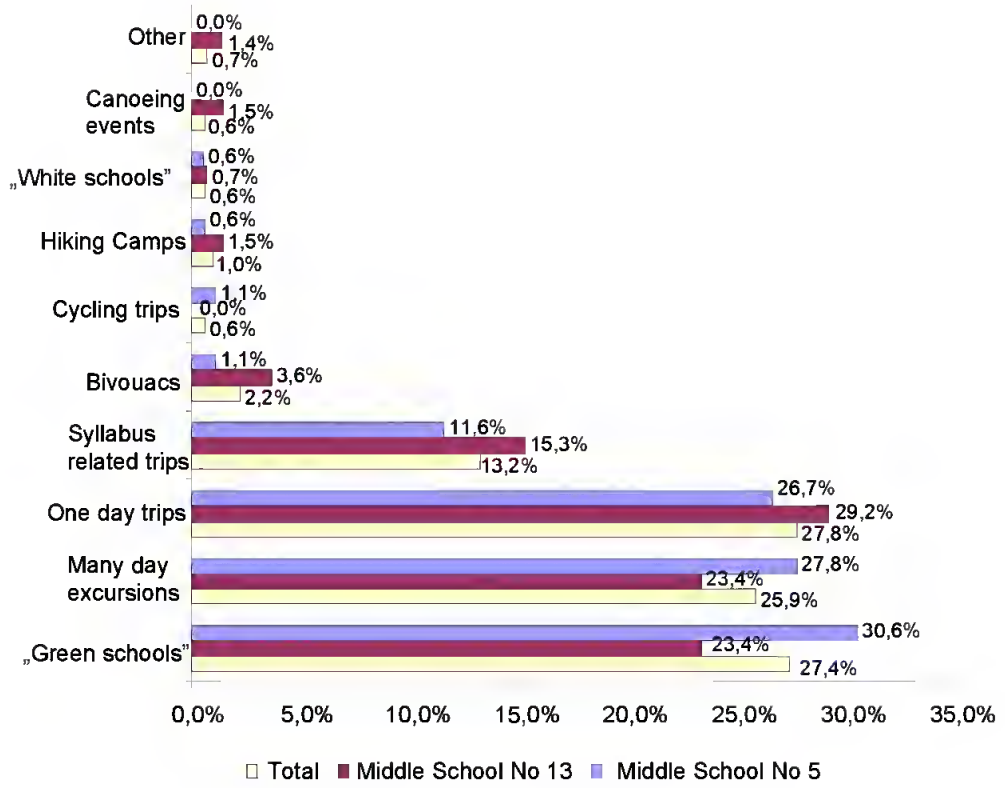

Chart. 3. Preferred forms of tourist activities at school

One day trips may prove so attractive bacause teachers are most likely to take up the responsibility for their organisation (the simplest and the cheapest events). There is a group of students who find it difficult to participate in other forms of tourist activities at school (social and economic barriers). Some students may also be simply unaware of other attractions available. Schools will depart from organising canoeing events, cycling trips, hiking camps or bivouacs due to their risky and more complex character.

When asked to assess the quality of tourist activities offered in the subject schools, almost a half of Middle School No 5 respondents (48.1%) and a bit fewer of Middle School No 13 respondents (43.5%) find them good – Chart 4.

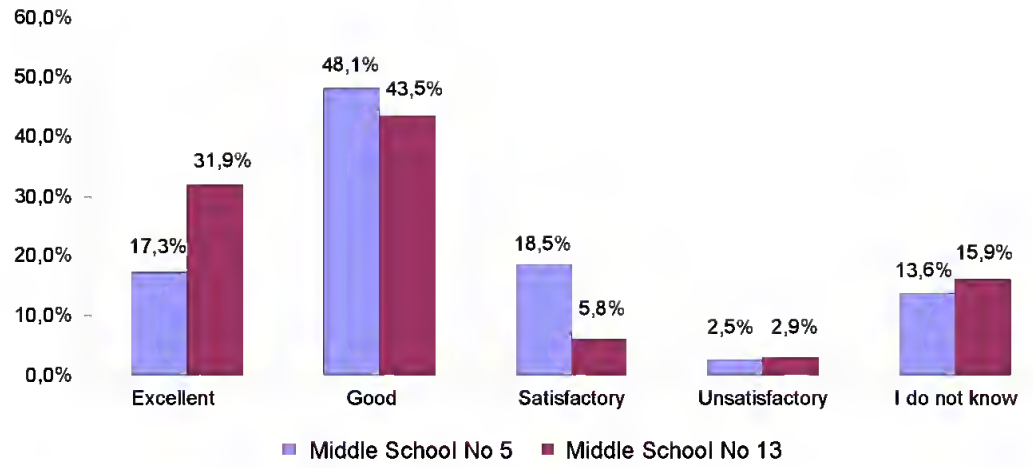

Chart. 4. Respondents' assessment of tourist activities in subject schools

On the contrary, 31.9% of Middle School No 13 respondents and 17.3% of Middle School No 5 respondents find them excellent. In both schools positive opinions are in majority.

However, quite a lot of criticism of the activities was reported as well and many respondents were not able to view them objectively (Middle School No 13 – 15.9%, Middle School No 5 – 13.6%). Respondents inability to express their opinions indicates their indifference and lack of particular expectations with regard to tourist activities or new attractive propositions (in particular in case of Middle School No 5).

Research summary

The results obtained let the researchers formulate the following conclusions:

1. The subject middle schools offer their students tourism oriented programmes; classes specialising in the subject are established. According to the data acquired in the Education Department in Wroclaw, 21 (out of 42) middle schools have set up travelling and sightseeing interest groups and the Friends of Wroclaw groups. The schools have also been implementing projects dedicated to making pupils acquainted with Wrocław and neighbouring region.
2. Teachers' opinions and the research results analysis indicate some students being indifferent to the subject matter. It often so happens that classes specialising in tourism admit those who failed pass exams to their first choice classes.
3. Most of the middle school respondents will involve in tourist activities at school, in particular in the syllabus-related trips or one day expeditions. There are a few who refuse to participate.

4. Almost half of the students engage in all or majority of tourist activities at school.
5. According to student respondents, schools are most likely to organise one day trips or many day excursions. They also report "green schools" as well as syllabus related outings among the school events which indicates that students get involved in such activities most frequently. High ranked "green schools" seem to enjoy big popularity with the students. Teachers find it more convenient and simpler to organise one day trips especially when compared with other forms of tourist activity.
6. Students' preferences seem to correspond with the schools' offer. They look forward to "green schools", one day and many day trips as well as to syllabus-related outings.
7. Student respondents usually express their positive attitude towards tourist activities available at school. However some negative assessment should be noted as well. The results create the pressure on teachers and co-operation institutions to continually improve the quality of tourist events.

Conducted research proves that tourist education may have an impact on students' active approach to tourism. Schools make attempts to introduce new proposals to stir up their students' interest. On the other hand, the fact that many students fail to involve in any forms of tourist activities should be viewed with concern. Nevertheless, it is particularly important that teachers do not give up in their efforts to promote tourist education.

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Physical recreation of Wrocław middle school youth

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Key words: physical recreation, free time, middle school youth

Abstract

Middle school age is defined as the most complex time in human life. It is influenced by both dynamic physical and mental development. During this period the young person's interest in physical activity depends on many factors and that is why this paper is interested in middle school youth spending their free time taking into account physical activity.

The research was carried out in 2007 in eight randomly chosen middle schools (gimnazja) in Wroclaw. The research applied a diagnostic survey method using the technique of survey and a survey questionnaire as a research tool.

The research shows that Wrocław middle school youth takes part in both organized as well as individual forms of physical activity. The individual form of physical activity is rated more favourably as it refers to 76.7% of the surveyed youth. Around 55.2% of respondents declare taking part in organized forms of sports and recreational classes.

Respondents who did not take up physical activity (in both cases) most often contributed it to the lack of willingness, interest and no time (this may suggest the lack of motivation and habits in spending free time actively). Unfortunately 14.2% of respondents have said that the lack of parents' acceptance is a hindrance in taking up active forms of leisure. Moreover a significant number of respondents could not justify why they do not participate in sports and recreational classes.

Each person's behaviour of is significantly determined by social factors which are developed at the earliest stage of human life. Thus the two most important education institutions: family and school should act in order to form appropriate attitudes towards physical activity, to teach children how to live in accordance with physical and mental hygiene norms, how to improve fitness, organism immunity and health as well as how to share time between work and leisure.

Introduction

The 21h century humans strive to live up to the epoch standards adapting the rhythm, contents and pace of their live accordingly. Unfortunately the expectations

often turn out to high, which evokes the feeling of fear and frustrations and finally stress.

Contemporary passive and unhealthy lifestyle causes numerous diseases, which affect in particular the cardiovascular system. According to scientific research, it is regular active relaxation that provides the best cure to everyday problems and effectively regenerates mental and physical health. However, against all logic and doctors' recommendations people ignore the imperative neglecting the natural need to involve in active leisure pursuits (Young,Williams 1989).

"It is the leisure pedagogy that deals with theoretical and practical aspects in terms of the youth leisure education" (Fąk 2005, p. 211). The concept of leisure education encompasses learning about leisure time and effective modes of pastime activities.

Leisure education seems particularly significantly nowadays when computers and technology development dominated the world taking their users away from what is considered beneficial in terms of leisure. Even at the very early stage of their life everyone should be fully aware of what is best for them and use leisure time most properly (Denek 2005).

Kids acquire such skills at home therefore these are the parents who take up the responsibility for developing desired leisure habits.

Parents are likely to pass their pastime habits to their off-springs (Fąk 2002). According to Kaik-Woźniak (2005, p.68), *"family and school should be perceived as the first factors influencing a young person's approach towards physical activity education. Parents, playing the role of first educators, should be held responsible for teaching children basic physical activities"*.

Institutions and organisations supposed to facilitate the development of active leisure habits are Youth Culture Centres, youth organisations, churches and affiliated institutions. Year by year, mass media are growing in significance, become more and more accessible and attract increasing audiences.

Physical activities involve several advantages, such as mental relaxation which helps fighting the negative stress impact, physical recreation facilitating recuperation of one's body; they also provide an opportunity of individual fulfilment and self-creation.

Other benefits include strengthening interpersonal relations, knowledge acquisition, gaining new experience and skills, occasion to engage in social and civic ventures or simply pleasure. Physical activity is beneficial for human health, in particular for mental condition releasing such positive emotions like delight, enjoyment or happiness. Some enjoy physical activity due to contact with natural environment. Active leisure is also appreciated in terms of its positive impact on developing one's fitness and improving body functions as well as battling against one's weaknesses (Winiarski 1989).

Leisure activities may shape one's personality and physical abilities, yet at the same time it may be just a waste of time and the way to be led astray.

Research assumptions and questions

Professional literature and research on the middle school youth's approach towards physical activities are scarce, which makes this study especially important. Results of the subject analysis turn out to be essential to set the guidelines for the 21st century man making proper use of their leisure time and at the same time developing desired leisure habits.

The research focuses on the amount of free time available and the way it is used by the respondents – middle school students (Łobocki 1999).

It aims at the diagnosis of the leisure activities taken up by Wrocław middle school adolescents. The following research questions reflect the subject matter of the research.

- What kind of physical activities do the respondents take up in their leisure time?
- How do the respondents assess their physical activity in their leisure time and what are their preferences?
- What values do the Wrocław middle school students associate with physical activity?
- What obstacles do they find when taking up the activities?

Research methods and material

The study was conducted the end of November and the beginning of December 2007 in eight randomly selected middle schools in Wrocław. 7 state schools no 2, 3, 5, 25, 30, 34, 38 and one private Salesian Middle School were selected by a draw. The authors purposefully picked up one private school to extend the scope of the subject material. The survey involved 78.5% of the third year students.

Table 1. General information on the surveyed Wrocław middle schools

	Number of Forms Three	Total number of			Location (district)
		forms	students	teachers	
Middle School No 2	4	12	325	33	Psie Pole
Middle School No 3	5	13	338	32	Przedmieście Olawskie
Middle School No 5	6	18	469	49	Stare Miasto
Middle School No 25	7	18	500	50	Gaj
Middle School No 30	6	19	505	50	Krzyki
Middle School	7	19	496	45	Nowy Dwór

No 34					
Middle School No 38	6	15	401	42	Krzyki
Private Salesian Middle School	3	10	226	29	Olbin
Total	**41**	**114**	**3034**	**330**	

Diagnostic survey method has been applied in the research work. Opinion poll and survey questionnaire have been used to collect data. (Łobocki 2003). The research was conducted with the support from the Wroclaw Education Department.

The authors interviewed the headmasters of all the selected schools. 1105 third form student respondents participated in the study. 921 opinion polls were collected in eight schools; 867 questionnaires went through the verification process.

Analysis of the research material

In terms of the number of questionnaires collected Middle School No 25 (16,8%) was ranked the first and followed closely by Middle School No 34 (16%), then by Middle School No 30 (14.4%), Middle School No 38 (13.7%) and Middle School No 5 (12.5%) with Middle School No 2 (10.3%) and Middle School No 3 (9.8%) submitting fewer questionnaires. Private Salesian Middle School comes last of the list with 6.3% of the papers collected. The survey was carried out in Wrocław so most respondents were the city dwellers (90.2%); the rest come from nearby areas (2.2%). The research involved exclusively form three middle school students, hence most respondents were 15 years old (85.6%). The group included 50.7% girls and 48.2% boys.

Most respondents come from families with two children (49.4%). 19,6% live in the families with three children and 18,6% have no brothers or sisters. Respondents with larger family background accounted for the smallest group (9.1%). Several students were not able to report their parents' job or education. According to the data collected, 33.5% mothers and 20.3% fathers are white-collar workers while 38.4% fathers and 24.7% mothers perform physical work.

Participation in organised recreation and sports events

The research was aimed first and foremost at investigating students' opinions with regard to their leisure activities. The respondents were enquired, for instance, about their participation in organised recreation and sports events. Slight majority (55.2%) declared taking up some physical activities in their leisure time, 44.2% are not interested in such participation and 0.6% failed to answer the question (Table 2).

Table 2. Middle school youth participation in organised recreation and sports events

Answers	No	%
Attends	479	55.2
does not attend	383	44.2
no answer	5	0.6
Total	**867**	**100.0**

Most respondents failed to explain why they attend no recreation or sports events in their free time (60.3%). The remaining 344 respondents blamed lack of time (28.5%), no will/interest (45.6%), being opposed to sports activities as such (7.8%), lack of interesting offer (5.5%) and health restrictions (5.0%) – (Table 3).

Table 1. Reasons why respondents fail to participate in organised recreation and sports events

Answers	No	%
lack of time	98	28.5
organizes leisure activities on his/her own	16	4.7
lack of money	0	0
no interest/will	157	45.6
lack of interesting offer/proposal	19	5.5
no need	0	0
little kids	0	0
distant location	0	0
Laziness	0	0
is not able to	0	0
dislikes sport	27	7.8
Disease	17	5.0
Other	10	2.9
Total	**344**	**100.0**

The research shows that students are most likely to take part in organised sports and recreation activities, e.g. football (16.4%), volley ball (13.6%), swimming (13.1%). Dancing (8.3%), running (7.7%) and basket ball (6.9%) are less popular with adolescents.

When asked to declare how often they attend such events (excluding physical education classes), they report occasional (6.4%) and sporadic (6.7%) participation. Most frequent (more than five time per week) participants account for 6.1% respondents. As many as 43.8% students did not answer the question at all (Table 4).

Table 4. Frequency of participation in organised recreation and sports events

Answers	No	%
occasionally (holiday time)	55	6.4
sporadically (usually once a month)	58	6.7
at weekends	28	3.2
once a week	64	7.4
twice a week	79	9.1
three times a week	90	10.4
four or five times a week	60	6.9
more than five times a week	53	6.1
no answer	380	43.8
Total	**867**	**100.0**

Most respondents have been engaged in organised sports and recreation activities for 2 to 5 years (24.9%). Supposedly, they come from the families where physical activity has always played an important role. (Table 5).

Table 5. Years of participation in organised sports and recreation activities

Answers	No	%
up to 2 years	45	5.2
2 – 5	215	24.9
6 – 7	88	10.1
8 and more	88	10.1
do not know	8	0.9
no answer	423	48.8
Total	**867**	**100.0**

Participation in individual recreation and sports activities

The respondents were also asked to answer the question about individual physical activities. More than three quarters of subject students (76.7%) declared some individual activities, except for the classes of physical education at school.

Those who fail to engage in active pastimes reported lack of time (30.5%), no will (28.5%) and no interest (15.1%) as the major reasons. Some maintained they dislike any kind of sport (7.8%) or informed about diseases (5.0%). Some blamed the lack of interesting offer (5.5%), which, however, seems irrelevant here – (Table 6).

Table 6. Participation in individual recreation and sports events

Answers	No	%
Attends	665	76.7
does not attend	198	22.8
no answer	4	0.5
Total	**867**	**100.0**

There is a wide range of physical activities to be chosen. Respondents, too, distinguish the diversity of leisure activities and indicated as many as 34 of them.

Most often the respondents declare taking up jogging (21.2%), football (14.2%), cycling (13.4%) and swimming (9.6%). They are also interested in basket ball (5.7%), volley ball (5.0%), physical exercises at home (4.7%), weight training (4.3%) and dancing (3.4%). Adolescent leisure activities include skating (2.0%), horse riding (1.9%), rollerblading or aerobics (1.7% each), too.

Frequency of taking up individual activities is high and depicts increased values for regular activities, contrary to the occasional ones (Table 7).

Table 7. Frequency of taking up individual physical activities

Answers	No	%
occasionally (holiday time)	128	19.2
sporadically (usually once a month)	71	10.7
at weekends	67	10.1
once a week	58	8.7
twice a week	85	12.8
three times a week	96	14.4
four or five times a week	83	12.5
more than five times a week	77	11.6
Total	**665**	**100.0**

Respondents' self-assessment with regard to their physical activity

Respondents' self-assessment with regard to their physical activity is a significant element in the analysis of their leisure behaviours as it provides data useful for verification of the research results discussed and reviewed before. According to the research conducted, 57.4% respondents declare they are satisfied with the amount of physical activity they have, whereas 21.8% feel they need more sports and related activities. 9.5% respondents were not able to determine whether they get enough sports activities daily.

The study revealed 35.8% respondents who declare particularly intense involvement in active pastimes. 21.9% subject students prefer less "dynamic" hobbies. Those who involve in static (8.2%) or even passive (10.5%) ways of spending their free time are a minority. Unfortunately 23.2% respondents chose the

answer "hard to determine the most attractive pastime". All things considered, the subject adolescents will often comfort their needs related to physical activities resolving upon active hobbies.

Values attached

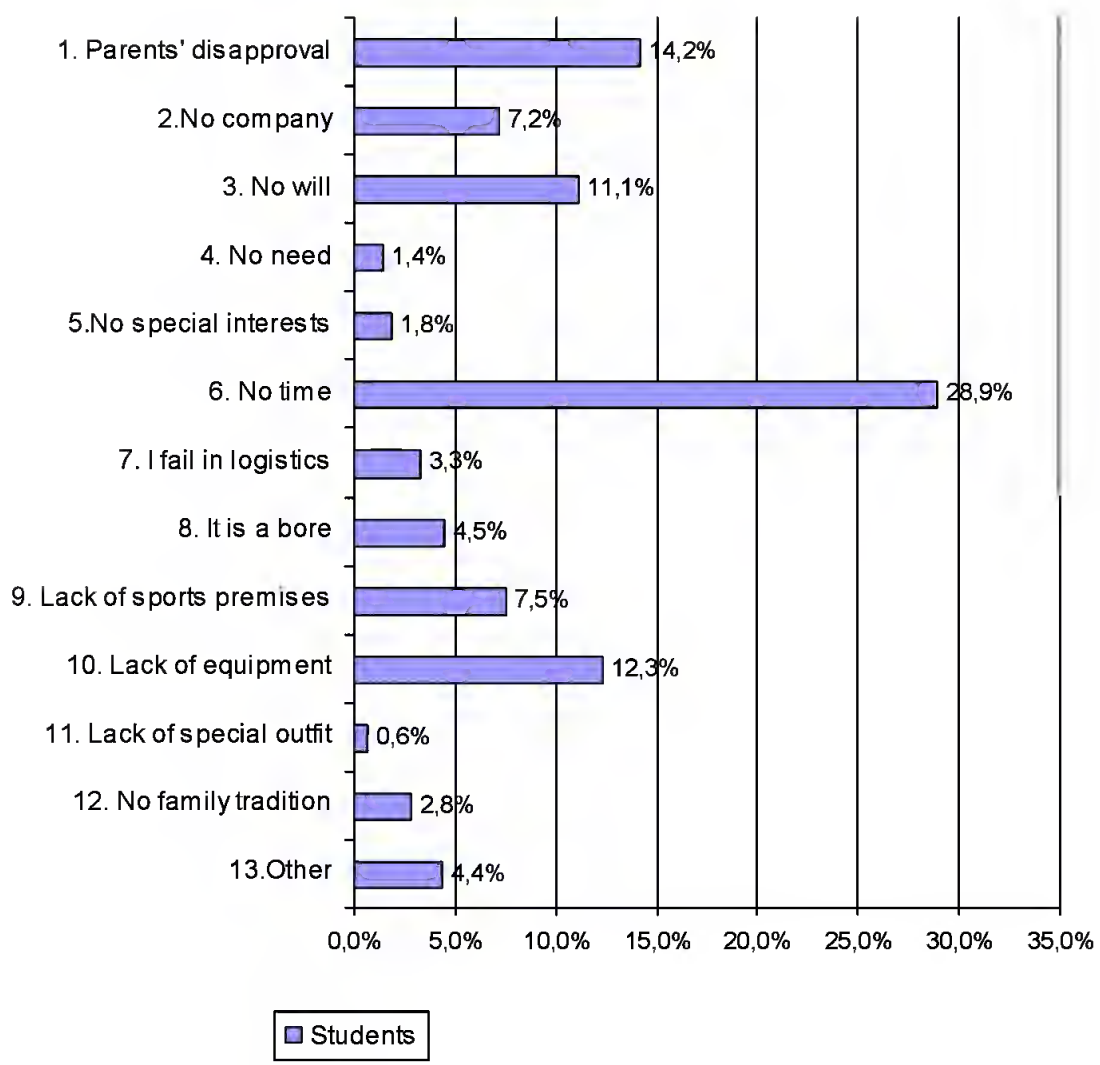
The way one spends his/her leisure time is an individual issue. Some need passive relaxation, some prefer travelling and sightseeing new unknown places, some look forward to meeting friends while others love feeling exhausted and strive for adrenaline rush.

The study shows that what young respondents need in their leisure time is first and foremost entertainment (24.6%). Many students reported physical and mental relaxation (23.4%) as well as contact with natural environment (4.7%) and the opportunity of getting away from the routine from everyday life (11.0%). Maintaining one's fitness and health care is important for 10.7% subject adolescents, pleasure – for 11.2% and interpersonal integration – for 4.2%. Respondents failed to find learning about new cultural environment or acquiring new knowledge, experience and skill important. Opportunity of fulfilment, self-creation, a chance to get involved in social and civic activity ranked the lowest (less than 1%).

Barriers

When taking up active forms of leisure activities one is likely to come across several obstacles on their way. Most respondents complain about the lack of time (28.9%) – Chart 1

Chart. 1. Obstacles that middle school students face when involving in physical activities



Furthermore, the subject students reported parents' disapproval (14.2%) and lack of required equipment (12.3%). Many of them are not willing to engage in physical activities (11.1%) at all. Smaller group blames limited access to sports and recreation premises (7.5%), some respondents have no company (7.2%) while some state openly that it is a bore (4.5%). A few of them reported their problems with logistics (3.3%) or lack of family traditions to take up any sports (2.8%). Some declared lack of interest (1.8%) and others no need to spend their free time in an active way (1.4%).

Summary and conclusions

Nowadays in times of rapid industrial development and dynamic growth in new sciences, people often forget to take care of themselves. Education, work, family

matters and pursuit of money become more time-consuming while health care seems to be neglected. People tend to spend less time on active pastimes and physical exercises. Majority of children and adolescents lack leisure education; their parents and teachers fail to develop habits of taking up physical activities. In their hurry, people find no time to consider the importance of active lifestyle. Although media have been emphasizing the benefits of physical exercising more often, many still have their doubts about physical activities and only few of them bother to promote active way of life. Parents who teach their children to make good use of their free time are scarce.

The authors of the paper aimed at finding out the opinion of form three middle school students regarding their leisure time habits.

After the analysis of the research material presented above the following conclusions have been put forward:

1. Both individual and organised forms of physical activities are available for the students. Individual activities include jogging, football, cycling. As far as organised events are considered, the students most often prefer football, volley ball and swimming.
2. Majority of respondents are satisfied with the amount of physical activities they get (57.4%).
3. What young respondents need in their leisure time is first and foremost entertainment (24.6%) followed by physical and mental relaxation (23.4%).
4. When asked about obstacles most respondents complain about the lack of time (28.9%). Other barriers include parents' disapproval (14.2%) or lack of required equipment (12.3%).

The research shows explicitly that the Polish society is still not prepared to involve in physical activities in their leisure time. For instance, only half of the middle school youth participates in organised sports and recreation events – planned ventures aimed at honing particular skills and developing one's fitness. Individual recreation may have occasional and unplanned character, leaving no trace to refer to later in adult life. Consequently, it is the responsibility of both the family and educational institutions to make best efforts to teach students how to develop active leisure behaviours.

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Chapter 2.

Sport and recreation

The past and current rank of physical activity in the life style of students of the University of the Third Age

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Keywords: free time, physical activity, the University of the Third Age, forms and motives of physical activity

Abstract

Recently there is greater and greater interest in subjects related to ageing process of human being as well as in old age itself. In the context of health, the attention is paid among others to the question of life quality and style of pensioners and annuitants, as well as to necessity of elaborating adequate patterns of behaviour in this range. Subject of the thesis refers mainly to sources of interest in physical recreation, its preferred forms, as well as motives because of which students of the University of the 3rd Age took up physical activity in their young age and now.

The aim of the thesis is to recognize and compare the past and current motives and forms of participation in physical recreation of students of the University of the Third Age.

The research by means of survey technique was carried out among 100 students of the University of 3rd Age in Opole. The respondents were in the age range from 55 to 84 years.

Based on the research results one stated, among others, that the respondents' main source of interest in physical recreation in youth age and now there was their own initiative. The leading motives for taking up physical activity by the surveyed persons since youth age up to the present there have been taking care about health and accompanying pleasure. Walking, swimming and riding a bicycle are the respondents' preferred forms of leisure activities today.

Introduction

The dynamic development of civilization throughout the world has caused a lot of negative and positive effects for today's society. One of the effects of this progress is the gradual lengthening of the period of human life and, consequently, the phenomenon of the rapidly growing proportion of seniors among the other social groups (Sztur-Jaworska 2000, Kozdroń 2006). As emphasised by Pędich

(Pędich 1996), the challenge in the nineteenth century was to reach the old age, whereas in the twentieth century – to fill the old age, i.e. to take actions in order to add the life to the years, not the years to the life.

Places where a valuable and creative lifestyle is popularised among older people include such institutions as the Universities of the Third Age (UTA) (Konieczna-Woźniak 2001). They allow seniors to acquire, supplement and update their knowledge, and encourage physical activity and participation in organising aid to others.

UTA students are a kind of "elite" among the elderly. The people, through all the initiatives undertaken in the framework of UTA classes, experience their second youth in a thoughtful and creative way, surrounded by people with similar problems and interests. Popularisation of various activities among the elderly is a factor that positively influences their mental and physical health (Kozdroń 2, Drabik 1997). Physical activity is said to be of particular importance in slowing the inevitable process of biological and psychological ageing (Drabik 1997, Roslawski 2001 and Parnicka 2004). Unfortunately, one of the natural features of motor ageing is the loss of spontaneous physical activity (PA) and aversion to physical exercises (Osiński 2003). Meanwhile, results of many observations show that the risk of premature death increases together with reduced physical activity (Drabik 1997, Osiński 2003, 1Astrand 2000, Paffenbarger 1993). Reduction of physical activity at the involution stage leads to metabolic disorders, which, in consequence, result in overweight and obesity as well as related cardiovascular diseases, including atherosclerosis, the leading cause of death in elderly people (Paffenbarger 1993).

Numerous studies show that PA positively contributes not only to life expectancy, but also to the opportunity of improving physical performance enabling mobility and extension of the period of functional activity in life (Kozdroń 2006). Functional efficiency is, for older people, the most important value since it means the ability to deal with everyday challenges (American College..1998, Pramann, Schäufel 2006).

Results of many observations show that the best way to maintain the functional efficiency until advanced old age involves pro-health behaviour based on physical activity, formed in youth and maintained during adulthood (Bouchard, Schepard, Stephens eds 1994, US Department 1996, Sas Nowosielski 2003).

Therefore, this paper attempts to determine the rank of physical activity in the past (previous) and current lifestyle of UTA students.

It is assumed that above students, as elite among ageing people, can retrospectively look at their past life and assess the current life, and ensure reliable collection of empirical materials.

The paper tries to answer the following research questions:

1. What was the rank of physical activity in the past and what is its rank today in the leisure-time forms of behaviour among UTA students?
2. How do respondents assess their past and current physical activity?

3. What were and are the reasons why respondents took up or take up physical activity?

The following two hypotheses have been accepted in formulating the above research questions:

1. The scope and form of self-assessment of physical activity among UTA students in the past and during the research are significantly different.
2. Motives for taking up physical activity among respondents included, among others, an increase in the importance of health-related reasons, a decrease in pleasure-related (hedonistic) reasons.

Research material and method

The study was conducted among 100 UTA students in Opole (62 women and 38 men aged 55 to 84) who agreed to fill in a questionnaire in the presence of an interviewer.

They represented almost 14% of all students of the institution that operates at the University of Opole.

Respondents had mostly higher education (34%) or secondary education (52%). Only three respondents were not retired yet.

Seeking answers to the research questions, the method of a single diagnostic survey was used, whereas the research tool was the authors' questionnaire that included 20 closed questions concerning pro-health of respondents in the past and while attending classes at UTA. This paper used a part of the collected information that enabled to formulate answers to the research questions.

Results of the research are illustrated in figures as percentages of most frequent answers. In case of some questions, respondents could choose three answers of the presented check list. Hence, the total percentages in such cases exceeded 100.

Results

The first analysed question of the questionnaire concerned the most popular leisure activities in the past and in the present by UTA students (Fig. 1).

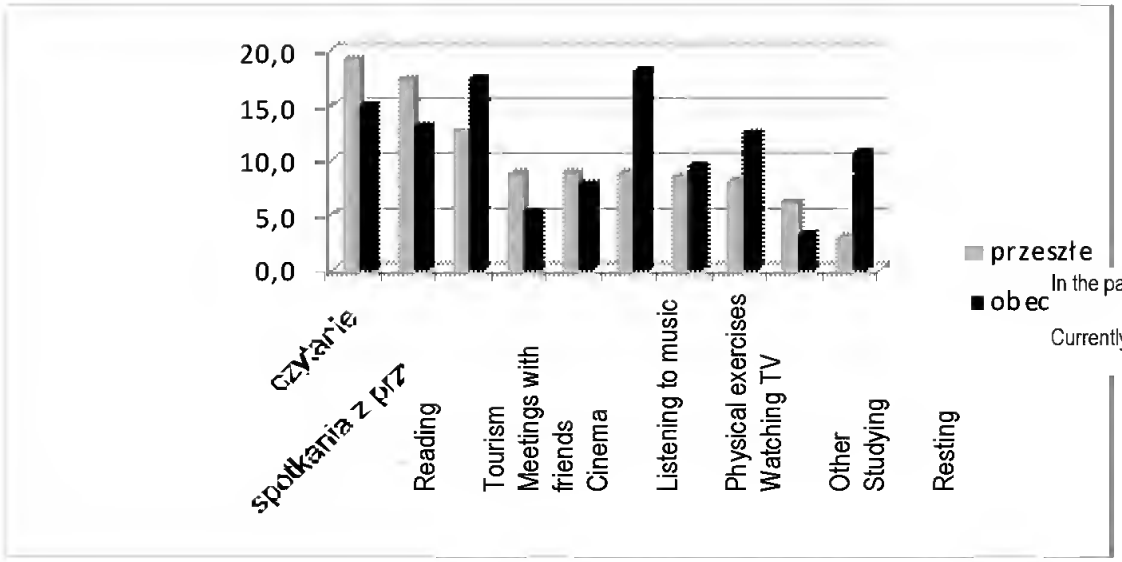

Fig. 1 Leisure activities in the past and in the present preferred by respondents

As one can see, there is much diversity in leisure-time behaviour among respondents in the past and during the period of the research. In earlier stages of their life, respondents preferred active forms of leisure such as tourism (17.2%) and physical exercises (8.8%). They comprised the total of over 1/4 of respondents. No other form of rest was selected so frequently. This trend to choose forms of spending free time intensified even during the survey period. However, there was an increase in the number of people engaged in physical exercises (18.3%) and a decrease among those selecting tourism (13.1%), as one of the three most common leisure activities. This is puzzling because it is assumed that tourism is the most popular form of recreational activity in the involution age (Alejziak 2000).

It is worth emphasizing that almost one third of respondents (the total of 31%) in adulthood prefer physical activity and tourism to spend their leisure time. Unfortunately, almost 70% of respondents did not list activities indicating physical exercises among the three most common forms of leisure activities.

Searching for confirmation and reasons for an increase in the percentage of respondents practising physical exercises during the period of the research, as compared to their youth, they were asked how they assessed their current PA in relation to the past and motives of this activity in the periods compared.

Over 60% of respondents said that their current PA was similar to that of the past, 22% that was lower, and only 6% that was higher. Less than 12% had no definite opinion on this subject. Such a distribution of responses does not allow for a clear decision whether the percentage of physically active respondents during the survey period has actually increased. Therefore, respondents were asked what the level (scope) of PA was in the past and was at the time of the research according to

their subjective assessment. The respondents assessed their PA in their youth as average (36%) and high (32%), while 15% said it was very high. Self-assessment of the current PA was significantly lower (more answers that it was standard (21%), average (51%), less that high (4%).

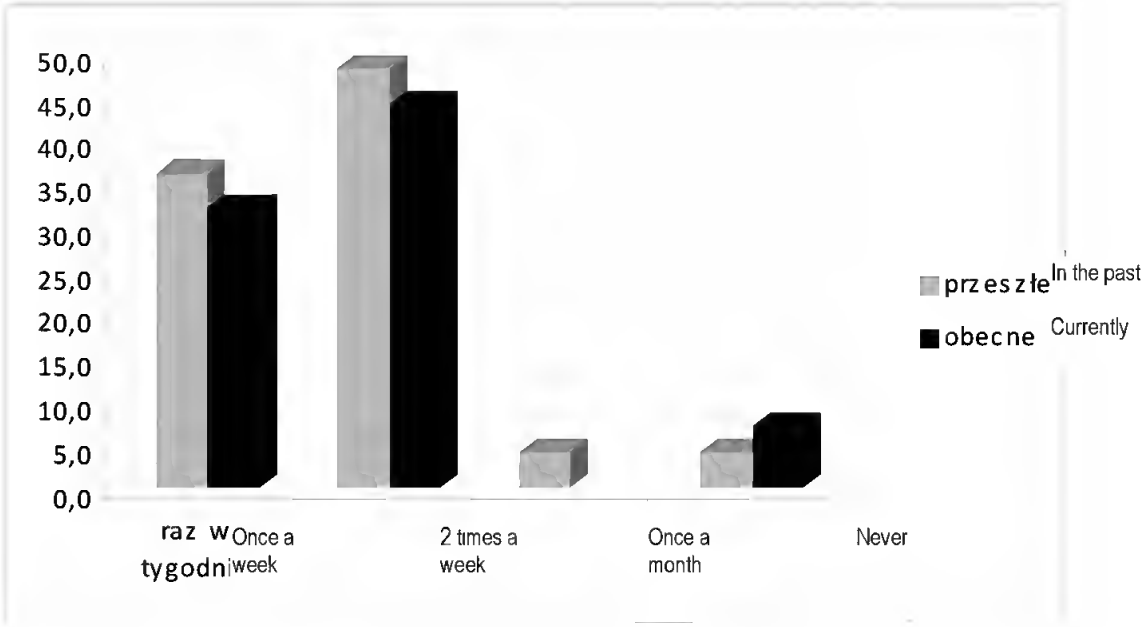

Fig. 2 Frequency of physical activity during youth and currently

Seeking the confirmation for self-assessment of PA, respondents were asked how often they practised the selected form of physical recreation. The majority of responses were once or twice a week, including the total of 84% of respondents regarding the past and 76% at the moment (Fig.2), which essentially confirmed results of responses to question 2. However, we cannot see that the information is, to some extent, contradictory to answers to question 1, since only one third of respondents indicate that physical activity was or is one of the three most commonly undertaken forms of leisure activity for them. Perhaps respondents are now more aware of the fact that their physical activity is too low for their health needs.

Such reasoning seems to confirm the clear differentiation of the past and current motives (reasons) regarding participation in physical recreation (Fig. 3).

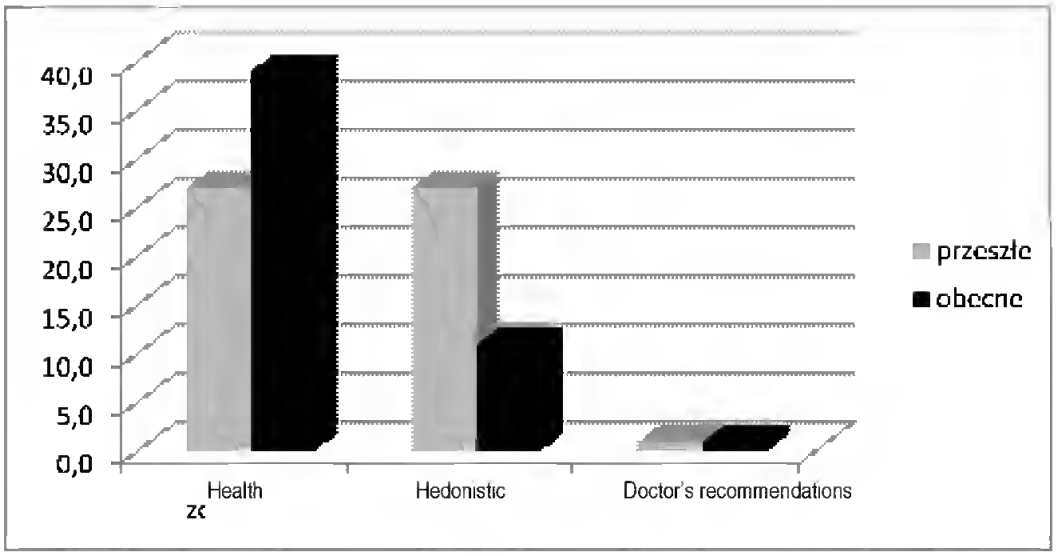

Fig. 3 Motives for participation in physical recreation

Although both survey periods were dominated by the health motive, its importance significantly increased together with the age of respondents: from 27 to 39%. This was also the case with PA resulting from doctor's recommendations (from less than 1 to 11%). Additionally, both motives are probably in their mutual relations. The opposite trend occurred in case of hedonistic motives for participation in physical recreation (a decrease in indications of this reason from 27 to 11%). This shows growing awareness of respondents regarding health benefits from active leisure.

This suggestion is supported by the age analysis in which respondents began to practice physical recreation on their own initiative (Fig. 4).

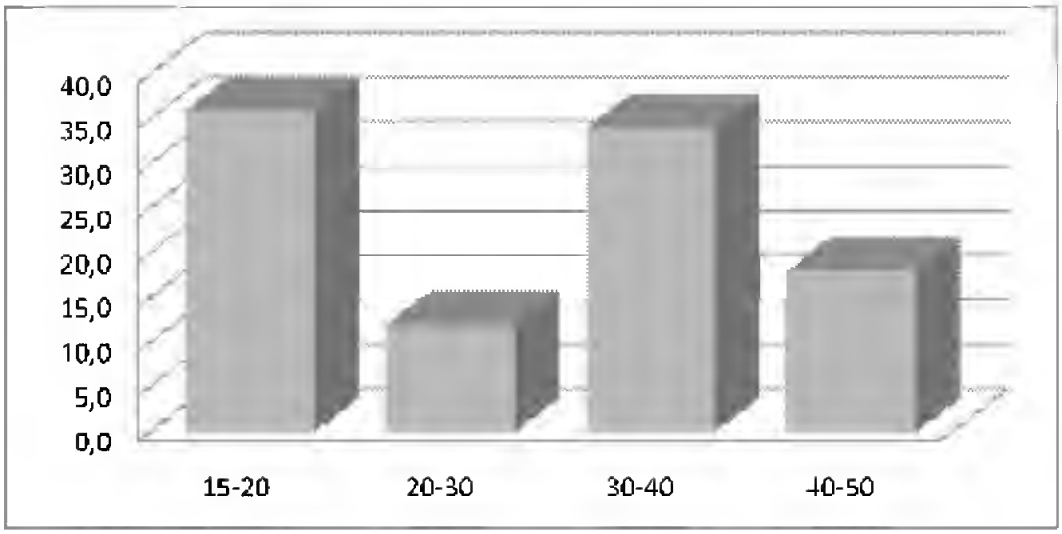

Fig. 4. Age when respondents began to practice physical activity on their own initiative

Age periods of 15-20 and 20-30 prevail here, confirming that habits of physically active lifestyles are primarily formed in youth. However, it is worth noting that a significant percentage of respondents indicate the age of 30-40 (13%) and 40-50 (18%). It can be assumed that health reasons were most significant for these people to change their physical activity.

It was also recognised who aroused the interest in physical recreation among respondents (Fig. 5).

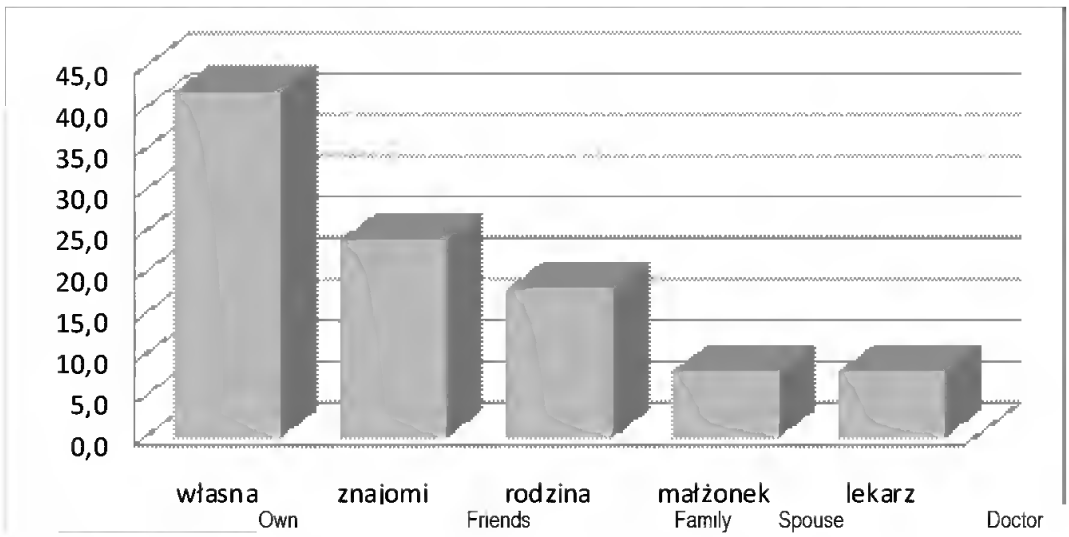

Fig. 5 People arousing the interest of respondents in physical exercises and tourism

Responses were definitely dominated PA taken up on own initiatives of respondents (42%). Important inspirations were also colleagues (24%) and close (spouses) and distant relatives (the total of 18%). Doctor's recommendations were indicated only by less than 7% of respondents, which, in a way, confirmed earlier responses.

There was also an attempt to diagnose reasons for spending too little time for PA (Fig. 6).

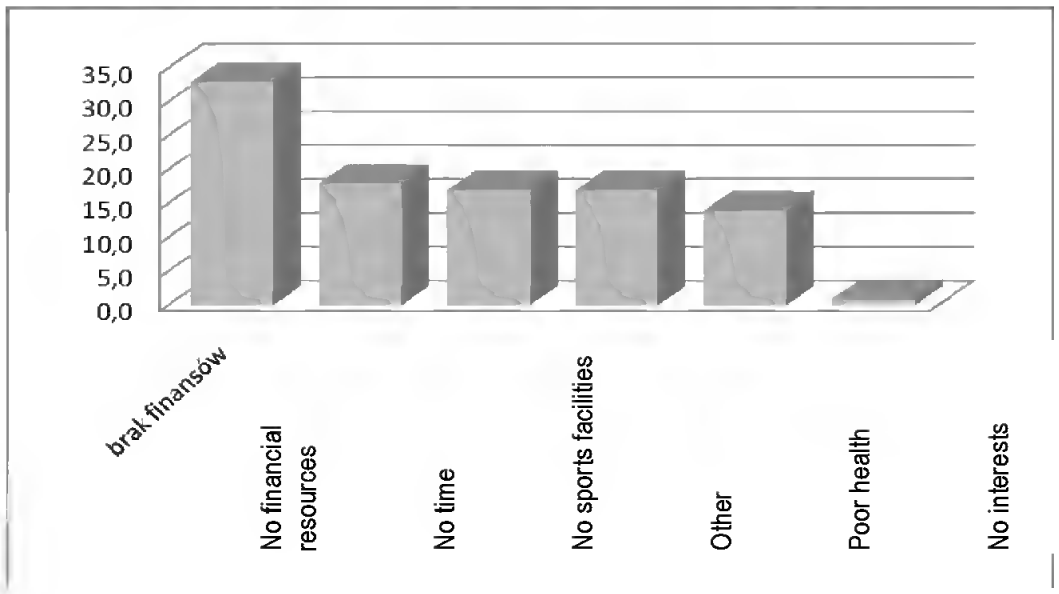

Fig. 6. Reasons for low physical activity of respondents.

Here, the dominating responses are the lack of financial resources (33%), which in the case of old-age pensioners is, unfortunately, the probable objective barrier. Another reason is the lack of free time (18%), which, in turn, is probably rather of a subjective nature, since seniors usually have too much of it.

The lack of wiliness to take up physically active leisure is demonstrated only by less than 10% of respondents, whereas only one person declares the lack of interest in physical activity. Previously conducted analyses show, however, that the majority of respondents on have good intentions as far as their positive attitude to PA is concerned.

It is interesting from the viewpoint of objectives of the paper to follow the evolution of PA forms preferred by respondents in the past and during the study period (Fig. 7).

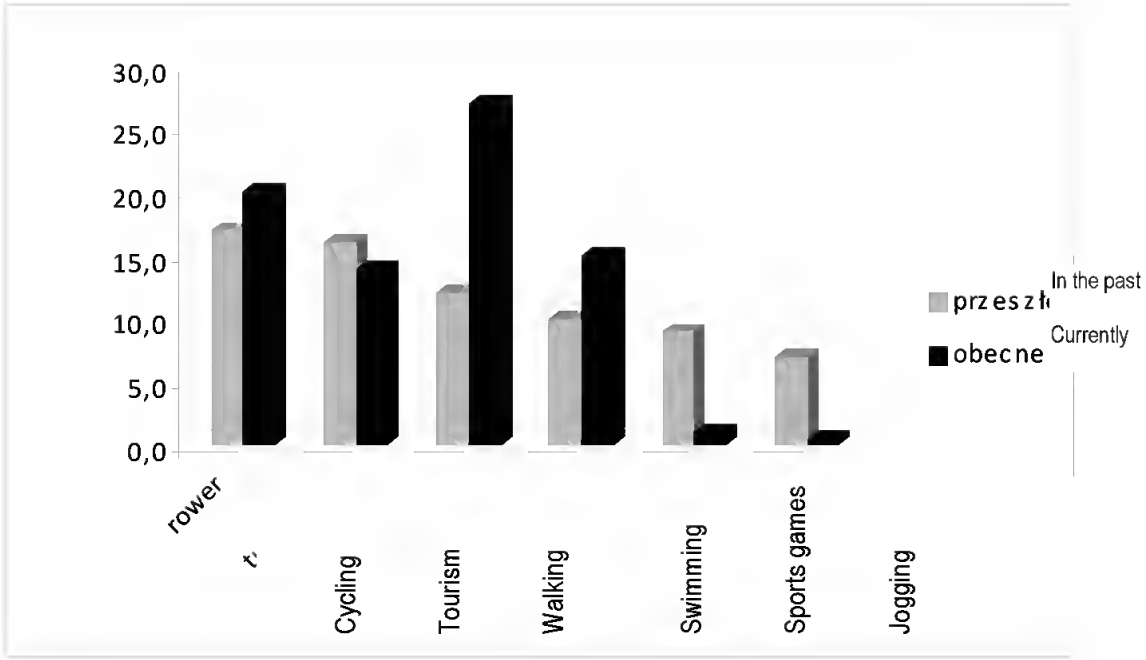

Fig. 7 Forms of physical activity practised by respondents currently and in the past

In this case, the general trend is in this case is an increase (together with age of respondents) of interest in forms of PA of lower intensity and less intensive to the movement system. Thus, more respondents currently choose current swimming (an increase from 10% to 15% of responses as compared with the period of youth), walking (from 12% to 27%) and cycling (from 17% to 20%). Sports games (a drop from 9% to 1%), "running for health" (from 7% to 0.5%) and tourism (from 16% to 14%) are less popular. In the last case, the trend shown in the previously conducted analyses was confirmed.

Discussion

The evolution of popular forms of PA selected by respondents in their youth as compared with those preferred at the stage of involution appears to confirm the previous suggestions and assertions about the past and present rank of PA in the life of UTA students in Opole.

The percentage of people declaring physically active forms of leisure activities increased among respondents from approximately 25% in the past to over 30% during the research period. Therefore, PA is not a regular form of relaxation and revitalisation of mental and physical strength for 2/3 of UTA students. This is still optimistic because results of Ostrowska's research (Ostrowska 1999) indicate that only less than 10% of Poles over 50 systematically practises various forms of PA. The elite nature of the tested group, as previously highlighted, is probably the cause of the 3-fold greater percentage of respondents declaring to regular practise

of physical exercises and tourism, as compared to the general population. It is difficult to logically explain why the proportions of these forms have changed to the detriment of tourism during the research period as compared to the period of youth. In general, it is assumed that tourism is the most popular form of recreational activity in the involution age (Alejziak 2000).

In answering the first research question, it can be stated that the rank of PA in the past and present ways of leisure activities for most respondents is not satisfactory from the viewpoint of their health needs. The symptom of improvement in this area is an increase of health reasons for PA taken up by respondents in the research period as compared to previous stages of life. Similar trends are pointed out by Guszkowska and Kozdroń (2001) and Toczek-Werner (2002). Perhaps respondents are now more aware of the fact that their physical activity is too low for their health needs.

Self-assessment of PA in light of research results appears to be overestimated because it is inconsistent with previous answers, which is a common phenomenon in surveys (Biernat, Stupnicki, Gajewska 2007). It is noteworthy, however, that self-criticism in this regard increased together with age of respondents. The above observations are answers to the second and third research question.

To sum up, it can be concluded that the first of the assumed research hypotheses was only partially positively verified, since both the extent and self-assessment of PA among UTA students changed only slightly in their old age as compared to their youth. However, there was a significant change in forms of practised PA, which was probably forced by age of respondents (Toczek-Werner 2002).

However, the second of the accepted input hypotheses was positively verified because the percentage of respondents that indicated health-related motives for PA increased together with their age. Opposite trends occurred in the case of hedonistic motives.

To sum up, it should be stressed that the popularity of participation in various forms of physical culture, even among people characterised by above average intellectual activities (UTA), is far from satisfactory. This is despite the well-known fact that physical activity extends youth, strengthens health and enables to maintain functional activity until late decades of life (Drabik 1997, Osiński 2003, Paffenbarger 1993, Kozdroń 2006).

Numerous studies show that PA maintained from the youth to the old age has a significant positive effect on physical capacity, neuromuscular coordination, resources of efficient movements, as well as to suitability for everyday life. This positive effect of PA on human health and functioning of people is clear among people that reached its high levels in their youth. However, to be able to count on specific results, PA should be taken up regularly, and the interest in physical activity should be to aroused as early in life in as possible (Raczek 1995, Wolańska, Corbin, Welk 2007).

Conclusions

1. It can be assumed that only 30% of respondents that are students of the University of the Third Age are systematic in their physical activity during leisure time. In the past, the percentage was even lower (about 25%).
2. Physical activity has no proper place in the lifestyle of about 70% of UTA students.
3. Respondents declare that they are most physically active 1-2 times a week, which does not meet even the minimum standards of frequency of physical activity effective for health.
4. Preferences of respondents in selection of physical activity have changed with age, from forms focusing on strength and speed (e.g. sports games) to endurance (walking, swimming, cycling), which should be considered as a further trend.
5. The past and current physical activities are differentiated mainly by motives of taking up such activities. From hedonistic in the past, to more health-related during the study period.
6. A similar proportion of physically active respondents in the past and in their older age indicates that regular physical activity habits are formed mainly in youth.

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Vegetarianism –changes and threats of maintaining organism's good health in the light of contemporary opinions

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Key words: vegetarian diet, health, obesity

Abstract

Vegetarianism as a way of nutrition has been known for a long time, however, only in recent years, the scientific evidence proved its pro-healthy character. Not all varieties of vegetarianism are safe and worth recommending to people in every stage of their lives. In addition to the undeniable benefits such as reducing the tendency to obesity, anti-atherosclerotic processes, reducing the tendency to raise sugar in blood, the threats should also be mentioned. These include in particular: the risk of an inadequate supply of wholesome protein, vitamin B_{12}, folic acid and iron. These shortcomings are especially dangerous for children and adolescents, whose organism needs a full balanced diet for the proper psycho physical development. The article presents different opinions on effects of following the vegetarian diet.

Introduction

The latest research results about people's diets in well developed countries, including Poland, show that the animal products are too excessive in an average ration, and what is more, insufficient in nourishing vegetables, fruit, fibres and juices taken directly from the plant products. Such nutrition model generates the formation of unfamiliar extents of civilization diseases in the degenerative character (obesity, arterial hypertension, heart attack, and stroke, some forms of cancer and diabetes etc.), which leads up to the untimely death.

A way to counteract with the unfavourable tendency of people's diets, nowadays, is to gain knowledge in the scope of results of making nourishment mistakes and to prescript the proper nutrition for both sexes in different age, different physical activity and different state of health. According to numerous studies, the cause of many diseases, on the ground of circulatory basis is nourishment. The excessive amount of food, which is industrially processed, herein lots of meat, products of meat, animal fats and salts, which are added to the food products in order to lengthen the sell-by date. Such unfavourable method of nutrition is established by the system of so called fast foods, which are available in

many countries, and well-liked by children and teenagers, what generates unfavourable eating habits in this group of people.

Some scientists postulate about changing the dangerous eating trends and suggest semi-vegetarianism (reducing half as much consumption of products of animal origin, with the exemption of milk, dairies products and fish) (*Weaver 2009, Winiarska – Mieczan, Mazurek 2005, Ziemlański, Budzyńska-Topolowska 1997*).

The aim of this article is to present the latest opinions of varies authors about the vegetarian way of nourishment, with its various modifications and results of such diets on human's health.

1. Historic outline on human's ways of eating

From the earliest times a human has always been an omnivorous creature who has been eating animal and plant products. At the beginning of its phylogenetic journey as Homo Sapiens, he was doing gathering for a living, this means feeding with rootlets, barriers, nuts, fruit of savagely growing trees. He did not despise eggs taken from bird's nests and small animals such as snails, lizards, insects etc., which could satisfy the hunger. As some authors notice *(Kierst 1972, Szczygiel 1975, Gawęcki i Hryniewiecki 2004)* nourishment is the first human's need, which must be satisfied before the new needs can be felt. It is estimated that about 3 million years ago, the anthropidae creatures (hominids) started hunting, which improved a style of living and enriched the food with wild animal's meat. 40 000 years ago, the gathering and hunting skills gained by tribes and starting a fire made it possible to enlarge the food assortment and its digestibility. Another stage of getting food was husbandry and cattle breeding, which had its beginnings in Asia and Egypt before 10 000 years ago and 5 000 years ago in Europe *(Charzewska 1987, Gawęcki i Hryniewiecki 2004).* It created the development of former civilizations, where each civilization was connected with the tillage of the definite edible plants. For instance: the Chinese civilization focused on the tillage of rice, the civilization of the Basin of Mediterranean Sea (Babylon, Egypt, Greece, Rome) on the tillage of wheat, the civilization of Mayas and Aztecs on the tillage of corn. The further development of getting food was connected with the intensification of plant and animal production. It should also be highlighted that the period in which, the animal proteins became the stable component of diet, crucially affected the rate of evolution of man.

A significant role in enlarging the dishes assortment had the food proceeding, which had its origins in Neolithic Age, when probably the methods such as drying, salting and smoking were used for a first time (*Charzewska 1987, Gawęcki i Hryniewiecki 2004, Ziemlański , Budzyńska-Topolowska., 1997*). Only however, in modern times at the beginning of XIX century, the invention of protecting food form rottenness by heating it in the closed dishes, triggered a new method of food preserve and made it possible to render independent consumption of the food from the time they were found. A similar processes of separating the place in which the food was consumed with the place in which the food was

produced, empowered the food trade starting from the ancient times, where the barter trade dominated, by so called spice trade in Middle Age, later colonial, up to now where the present forms of the consumer goods trade is taken care of by the qualified trade companies (*Kierst 1972, Szczygieł 1975, Gawęcki Hryniewiecki 2004, Wądolowska i wsp. 2003*). A very significant event of enlarging the human's access to food was distinguishing an individual study, namely, the food technology, at the beginning of the XX century. It created a dynamic expansion of all branches of proceeding, fixation, and acquiring food products. Among only the methods of prolonging the sell by date, there are nowadays several dozen of ways such as: low and high temperature, ultrasounds and ionizing radiation. Each of these methods peculiarly affect the fixed raw materials, resulting in production of new product, which are different in organoleptic features and chemical compositions. The new types of products appeared, which were the autonomous creation of the food industry, e.g. barm, citric acid, ice-cream and some refreshing drinks etc.

The analyze of the people's nourishment evolution showed that at the beginning of their diets dominated the plant products, in a meantime the amount of the animal products increased and nowadays it seems that it prevails over the plant products (*Ziemlański, Budzyńska-Topolowska 1993, Weaver 2009*). Simultaneously, for many generations the mankind gradually has been changing its nourishment from eating nature raw products to the industrially processed products. From day to day the way of acquiring products is easier, which causes that contemporary man, particularly dwelling in well off countries , eat too much energy-rich products, animal fats, sugars, salts, and too few fibre-rich, mineral-rich and vitamin-rich products. This model of nourishment, in insufficient physical activity, makes a contribution to generate the civilization diseases such as obesity, diabetes, myocardial ischaemia and cerebral ischaemia and some forms of cancer.

2. Physiological bases of nourishing

The proper, or rational nourishment, is one of the component which affects the good state of health, the quality and expenditure of life. According to many researches, it is generally known that rational nourishing consists in supplying an adequate amount of energy and nutritional factors to the organism while taking into consideration sex, age and state of health, physical activity and physiological state such as pregnancy or lactation. (*Craig i wsp. 2009,Gawęcki , Hryniewiecki (red.) 2004, Szczygieł 1975,* Willet *1994,*). To fulfill the eating demand, the amount of meals during a day should also be taken into consideration. They are the basis of maintaining the good state of health and optimal psychophysical development genetically conditioned. All necessary nutrient elements should be eaten in particular meals. However, it should also be kept in mind that a proper nourishment ration allows the optimal use of nutrient elements which are in the food products, for example, absorption of iron increases while vitamin C is ingested.

It should also be highlighted that the nourishment shortages which occur for a longer time, can lead to metabolic disorders. At first, they are hardly detected, but after a while they can cause permanent biochemical-morphological changes

and lead to health disorders and developmental disorders. *(Borawska, Malinowska, 2009, Ziemlański, Budzyńska-Topolowska. 1997 Szczygiel 1975, Gawęcki Hryniewiecki (red.) 2004).* For instance, eating the products with high index of glycemia (largely increases the glucose rate in blood), can lead to development of diabetes, type two. Health disorders which result in improper nourishment affects especially when it comes to young organisms, which are in intensive development (children and teenagers). That is why, the consideration of children's nourishment at the earliest age is understood. These days, it is well known that the results of overfeeding children lead to obesity of the young generation. The attention should also be paid to the proper nourishment of children at the earliest age. The amount of fat cells, which are connected with it, stay with the individuals in the metabolic readiness and gather the triple-glycerides until the end of individual's life. It has a very unfavourable significance for the process of maintaining the proper mass and body's composition, because the amount of mentioned cells do not decrease, even in radical diets. It decreases only the amount of fat in cells. These people have tendency to obesity *(Borawska, Malinowska 2009, Chalcarz, Chutko 2003, Ziemlański, Budzyńska-Topolowska 1997).*

It should also be highlighted that the abnormality in human's nourishment covers not only the shortages in food products, but also excessive nourishment of some products. When the nourishment is too plentiful and one-sided it can lead to shortages of some nutrient elements. A very good example which confirms this thesis is when there is an excessive nourishment of sugars (sweats) which result in shortages of vitamins and some mineral salts *(Kierst 1972, Willet 1994, Winiarska – Mieczan, Mazurek 2005, Wądolowska i wsp. 2003).*

The significant negative aspect of nourishment is irregular schedule of the meals during the day and its improper composition. It should also be emphasized that there are some people who do not eat breakfast, which decreases the glucose rate in the blood, which consequently leads to bad mood and worsen work efficiency. The negative consequences appear while eating very late or even worse while eating at night. At that time, the alimentary canal is forced to work almost twenty four hours a day, the post-prandial metabolism (increases) appears in the sleeping time of the organism which enlarges the tendency of putting aside the adipose tissue (*Gawęcki., Hryniewiecki (red.) 2004, Szczygieł 1975., Ziemlański., Budzyńska-Topolowska 1993*).

It is also worth mentioning that the basic rule of the rational nourishment is a variety of products in daily menu. Such approach protects the organism from shortages and excesses of particular nutrient elements, and what is more, the unwanted substances which through the mediation of nutrient elements can get to the human's organism.

3. The influence of the vegetarian diets on the human's state of health

3.1. Vegetarianism and the civilization diseases

It is well understood that many people show interest in research results which present effects of the vegetarian diets on human's state of health in different periods of life, and what is more, the prophylaxis and treatment of civilization's diseases.

Many papers have been collected which prove that people who have vegetarian habits of eating less often than people who prefer traditional eating habits suffer from these diseases: obesity, myocardial ischaemia, cerebral ischaemia, diabetes –type two, colon cancer, osteroporosis, nephrolithiasis, and gastrolithiasis. *(Borawska, Malinowska 2009, Craig, Mangels, 2009, Ginter 2008, Sticher i wsp. 2010, Traczyk., Ziemlański 2000*).

For sure it should be highlighted that the authors of the papers wrote that the research results were underdone on adolescent, who have been on vegetarian diet for some period of time, whereas in the childhood they were nourished in the traditional way. That is why, the results of these researches should not be shifted to children and teenagers population, as these groups are in period of intensive height and psychophysical development, and the results of the vegetarian diets, especially vegans, can have side effects.

According to many researches, vegetarians have a lower rate of death due to circulatory diseases rather than people who eat traditional food, who are the same sex, and are at similar age as the vegetarians (*Leitzmann 2005, Mills i wsp. 1994, Panczenko-Kresowska, Ziemlański 1995).*

A very interesting case was presented in the USA. Due to the epidemiological researches (*Mills i wsp. 1994,)* the American sects Seventh-day Adventist, who recommend the vegetarian food, and encourage people to reduce smoking cigarettes and drinking alcohol, proved that the rate of death and the morbidity on the civilization diseases is lower. However, probably, the reason of better state of health is not only the vegetarian food, but also the style of living.

The research results (*Ornisha i wsp. 1990)* should also be mentioned which present the role of vegetarian diets which affect the process of reducing or even withdrawing arteriosclerosis changes. It was experimentally demonstrated that among those people who eat light vegetarian food, and have proper physical activity, after one year of this experiment, the cholesterol rate was reduced up to 24%, and cholesterol LDL up to 37,4%. The angriographical researches present that the narrowing of the coronary artery is smaller from 40% up to 37,8% at the end of the experiment. At the same time, in the control group the narrowing of the coronary artery is bigger from 61% up to 64%. To sum up, over 80% of sick people from the experimental group noticed the withdrawing of arteriosclerosis changes. The most significant improvement was noticed in people whose arteriosclerosis changes where bigger at first.

The epidemiological research results indicate that while eating a big amount of vegetables and fruit, the possibility of cancer morbidity is smaller

(*Słociak, Bartnikowska 2007, Willet 1994, Mills i wsp. 1994, Winiarska – Mieczan, Mazurek 2005*).However, it has not yet been proven which nutrient substances affect on the reducing risk of different forms of cancer. The problem needs more researches. It is generally claimed, that vegetarian diets can cause such changes in the organism, which can stop the cancerogenesis and tumorigenesis *(Ziemlański, Budzyńska-Topolowska 1997*). The connection between the diets and cancer of colon has been noticed. It is predicted that the vegetarian nourishment can decrease the risk of cancer of this organ. (*Sticher i wsp. 2010).*

Other researches (*Weaver 2009*) show that the resigning from drinking milk for a longer period of time can aggravate the risk of prostate cancer. In the light of these researches, it can be easily noticed, that the light vegetarian diets have a bigger effect on human's health over the vegetarian diets.

It is also worth mentioning that the research results of many authors *(Ginter 2008, Craig, Mangels 2009,* Segasothy, Phillips 1999, *Traczyk, Ziemlański 2000, Wądołowska i wsp. 2003,*) show that the lifetime prolongs in the group of people who eat vegetarian foods. It is assumed that the effect on the lifetime, the better life comfort and the lower morbidity rate have such substances as: lower amount of saturated fats, higher amount of vitamins and mineral salts including antioxidants and fibres and the style of living (resigning from smoking tobacco and drinking alcohol).

3.2 The negative consequences of vegetarian diets

According to many research results, vegetarian diets aggravate the risk of some diseases. The most frequent are: ischaemia with shortages of haemogenous substances, that is iron, vitamin B_{12} and folinic acid. The diets which can also influence the shortages in wholesome proteins, rachitis, osteomalacia due to shortages of calcium and vitamin D (*Bułhak-Jachymczyk, Ziemlański 1994, Craig, Mangels 2009, Leitzmann 2005, Mills 1994, Słociak., Bartnikowska 2007, Weaver 2009*). A threat rate is connected with the particular sort of vegetarianism. The most endangered are those people who are vegans- the extreme form of vegetarianism which resign from all animal products , including eggs, milk and diaries products. Much reduced risk refers to people who choose the more gentle form of vegetarianism. Lack of the diaries products in the diet can be a reason of lack of calcium and, what is more, additional shortages of animal products (liver, fish fats, cod-liver oil and eggs) which can affect to a lower amount of vitamin D. Due to such shortages, especially among children, the rachitis can develop very fast. Adolescents who eat meatless foods, have a lower state of emergency because after a while the metabolic acceptance can occur, which save the calcium in organism by reducing dismissing this element with urine (*Traczyk, Ziemlański 2000*).

Vegetarian diets can cause shortages in iron in the organism. Although, it occurs in plant and animal products, its bio-digestibility is different. From plant product, the absorbability iron rate is low and it equals 2%, whereas from animal products the absorbability rate is high and equals 20% (*Bułhak-Jachymczyk,*

Ziemlański 1994 Gawęcki, Hryniewiecki (red.) 2004, Ginter E. 2008, Leitzmann 2005, Winiarska – Mieczan 2005). It should also be mentioned that even the small portion of meat to plant nutrient ration increases about twice as much absorbability of iron. Moreover, vitamin C helps to absorb iron from the plant products. However, the products which worsen the absorbability of iron in the alimentary canal are: dietary fiber, fitynine and tea. These days, there are no doubts that diets especially vegetarians can cause to shortages of iron, because the best absorbability of iron in the alimentary canal is so called stopped in the muscles and its preserves, however, in the vegetarian diets there are substances which worsen the absorbability of iron.

The research (*Herberta 1994*) shows that the shortages of iron and vitamin B_{12} can damage the mucous membrane of esophagus which can cause the cancer in this organ. The research of the mentioned author among Chinese people who eat only the vegetarian foods, showed a frequent appearance of this affliction.

The haemogenous processes of the organism need, apart from iron and vitamin B_{12}, also folic acid. In food it can be found as a chemical complex which is called folacin. Folacin can be found in milk, meat, leguminous plant seeds, leaf vegetables and fruit. According to the published data, the shortages of folacin can occur among the group of people who eat vegetarian foods than those people who choose traditional foods. (*Traczyk., Ziemlański 2000, Ziemlański, Budzyńska-Topolowska 1997).*

To sum up, it should be stated that the vegetarian diets cause the risk of worse supply for the human's organism such as wholesome proteins, iron, vitamin B_{12}, folinic acid, vitamin D and calcium.

Conclusions

1. People's nourishment in well developed countries shows that the excessive consumption of the animal products in a daily rational, and at the same time the insufficient amount of vegetables and firbles and juices. Such model of nourishment generates the appearance of civilization diseases –degeneration character (obesity, arterial hypertension heart attacks, stroke and some forms of cancers), which leads to untimely deaths.

2. In order to keep the proper state of health the supply limitation of some substances in daily rational are necessary such as energy, refined sugars, animal fats. This nourishment model can be achieved by some vegetarian diets especially semi vegetarian.

3. Vegetarian diets with all its advantages, can lead also to some serious shortages in some nourishing substances, what can be especially dangerous for children and teenagers.

4. Generally speaking, the best nourishing model seems to be semi vegetarianism. It is not risky for human's health and stays in compliance with the rational nourishment.

5. Almost all authors are curtain that in order to keep good state of health, with the exemption of proper nourishment, the regular physical activity is necessary.

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Prevalence of pain symptoms and range of motion in lumbosacral spine in professional athletes

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Key words: Spine pain symptoms, sports injuries, football, volleyball

Abstract

Introduction: Pain syndromes in the lumbosacral section of the spine are regarded as the disease of a civilisation, constituting a significant contemporary medical as well as social and economic problem. In case of professionally practised sports, frequently repeated heavy loads affecting various planes cause excessive use of the spine in its lumbosacral fragment. Pain symptoms of the spine in athletes are a result of the aggregate of the hazardous loads, which in turn leads to a progressing deterioration and accelerated wear of anatomical structures in the spinal area.

Goal of the Paper: This paper's goal was to assess the frequency and relations of the prevalence of pain symptoms and range of motion in lumbosacral spine in professional sport players against age, time and type of practised sport.

Materials and methods: The research involved 30 professional sportsmen, including 15 volleyball players from "Delekta Chemik" Bydgoszcz sports club and 15 footballers from "Zawisza" Bydgoszcz Football Association. The research performed on football and volleyball players covered the following examinations: functional examination and assessment of spine pain trouble as well as age and time of practicing the given sport.

The Results: Frequent occurrence of lumbosacral spine pain symptoms was observed in case of 80% of the sportsmen amongst volleyball players and in case of 20% of those in the footballers group. The study of relations between frequency of spine pain prevalence against age and type of the practised sport proved positive correlations among the parameters subject to examination.

Conclusions: Pain syndromes in the lumbosacral section of the spine are more frequent amongst volleyball players than among footballers. Spine pain trouble prevalence in sportsmen does not have its effect in limited mobility of lumbosacral section on the spine, however the risk is increasing with age and period of activity.

INRTODUCTION

Sport activity is beneficial to psychosomatic condition which improves life quality, but at the same time causing injuries may constitute hypothetical health hazard. The main reasons that are favourable to sports injuries include strain conditions following strenuous trainings and relatively short rest periods, premature return to trainings after an injury, lack of appropriate warm-ups, errors in training methods and unsatisfactory training practice of a sportsman. Watson's studies revealed that no less than 42% of injuries are caused by unsatisfactory preparation for the season (Watson 2001).

Other factors also favourable to injuries in sports are a growing popularity of competitive sports and progressing commercialisation of sports reflecting social demand on the top level shows. The pressure exerted by the media increasingly leads to supramiaximal loads on a man's locomotor system. Such loads cause physical injuries thus temporarily or permanently excluding a player from practising his or her discipline (Widuchowski 1997).

Review of the disciplines most frequently causing injuries covers a number of sports. Football is an example of the most direct contact sport with the highest injury rate. Among the non-contact sports, volleyball has equally high injury rate. Lumbosacral section of the spine is the locomotor organ particularly exposed to injuries amongst those who practise sports requiring repeated flexions, hyperextensions and rotary movements of the spine. All injuries of the spine sustained in sports amount to 4-18% (Dincer et al. 1992).

Recognition of injury mechanisms in sportsmen and what follows the injury will enable us to gain a broader understanding of pain symptoms of the spine. There are hardly any studies in Poland concerning the occurrence of pain symptoms and assessment of spinal motion in professional sportsmen. Consequently, scientific research undertaken in the field seems to be exceptionally well-grounded and desirable.

GOALS

This paper's goal was to assess the frequency and relations of the prevalence of pain symptoms and range of motion in lumbosacral spine in professional sport players against age, time and type of practised sport.

1. Study covering the frequency of pain symptoms prevalence in sacro-lumbar section of the spine amongst professional volleyball and football players.
2. Assessment of the interdependence between range of the spinal mobility and prevalence of pain symptoms in the same area.

MATERIAL AND METHODS

53 players in the age between 18 and 35 (24 years old on average) were included in the research. The research was performed in the period between January and May 2008 on the group of active sportsmen in the given discipline and those who take an active part in trainings and games in the premises of "Zawisza"

Civil - Military Sports Association in Bydgoszcz and in "Łuczniczka" Sports and Entertainment Arena in Bydgoszcz.

30 professional and active volleyball or football players were involved in the research. The researched group consisted of 15 volleyball players from "Delekta Chemik" Bydgoszcz sports club and 15 footballers from "Zawisza" Bydgoszcz Football Association. All players holding a membership in the given sports club at the time of the study were subject to the study.

Progress of the research and description of the research methods:

The first stage consisted in completing a two-part survey form by the player. The first part was prepared for all the sportsmen and provided the following information: age, weight, height, time the given discipline has been practised. The second part of the survey was designed for the sportsmen who has had the experience of pain symptoms in sacro-lumbar section of the spine. The questions included there referred to the course of pain ailments, number of pain occurrences, extent of pain radiation, influence on the physical activity of a sportsman and applied treatment. A 10-point VAS (Visual Analogue Scale) was adopted to assess pain where 0 refers to completely painless condition , while 10 indicates the most acute pain one can imagine.

Physical examination was focused on the assessment of a functional condition of the spine in its sacro-lumbar fragment, sacroiliac joints, hip-joints, lower limb nerves tension and strength of abdominal muscles. Assessment of the selected anatomical structures possibly contributing to the prevalence and course of pain ailments in sacro-lumbar section of the spine among the sportsmen was based on the following tests: SLR test, Patrica Fabre test, Thomas test, contracture of rectus femoris muscle test, abdominal muscle strength test according to Lovett scale.

Range of motion of the spine was performed with electronic Sanders' inclinometer. Measurement was evaluated with a 4-grade scale for each movement in all axials.

Statistical analysis:

1. Standard deviation (SD), Mediana (M) - Variability of the analysed parameters
2. Student's t-test - evaluation of differences between the analysed groups as regards independent and dependent variables.
3. Chi-square test (χ^2) – to evaluate proportions in the groups
4. Rang Pearson test - to calculate the relationship between the two characteristics
5. The level of $p=0.05$ was determined as the limit of statistical significance, whilst all values where $p>0.05$ were classified as statistically insignificant.

RESULTS

The average age of the volleyball players was 26.87 years (SD ± 5.05 years) which is decidedly higher than amongst the footballers - 21.13 years (SD ± 4.09 years). The variable turned out to be statistically significant (t=3; 42; p=0.002). Volleyball players were older than the footballers. The average number of years the volleyball players practiced their discipline for amounted to 13.73 (SD ± 4.99 year), whilst in the footballer group it was 9.20 years (SD ± 4,65 years). Volleyball players train on average 4.5 years longer than the footballers.

Statistical analysis covered weight and height of the players in both disciplines. Average height of the volleyball players amounted to 197.27 cm (SD ± 7.00 cm), and in case of the football players it was 180.1 cm (SD ± 8.77 cm). Average weight of the volleyball players amounted to 94.53 kg (SD ± 12.14kg) which was higher as compared to 75.87kg amongst the footballers (SD ± 8.44 kg). (tab. 1)

Table 1. Measurement of biometrical parameters, age and time the given discipline was practised in

	Volleyball players		Football players		T	p
	M	SD	M	SD		
Age	26.87	5.05	21.13	4.09	3.42	0.002
Weight	94.53	12.14	75.87	8.44	4.89	<0.001
Height	197.27	7.00	180.13	8.77	5.91	<0.001
Sport practising time	13.73	4.99	9.20	4.65	2.57	0.016

80% of the examined volleyball players suffered from pain trouble in sacro-lumbar section of the spine, whilst amongst the footballers it amounted to 20% of the subjects. 12 out of 15 volleyball players experienced pain symptoms in lumbosacral section of the spine, whereas the same symptoms were experienced by only 3 out 15 football players (SD ± 0.41 was the same in both groups). The variable is statistically significant (p<0.0005). (fig.1)

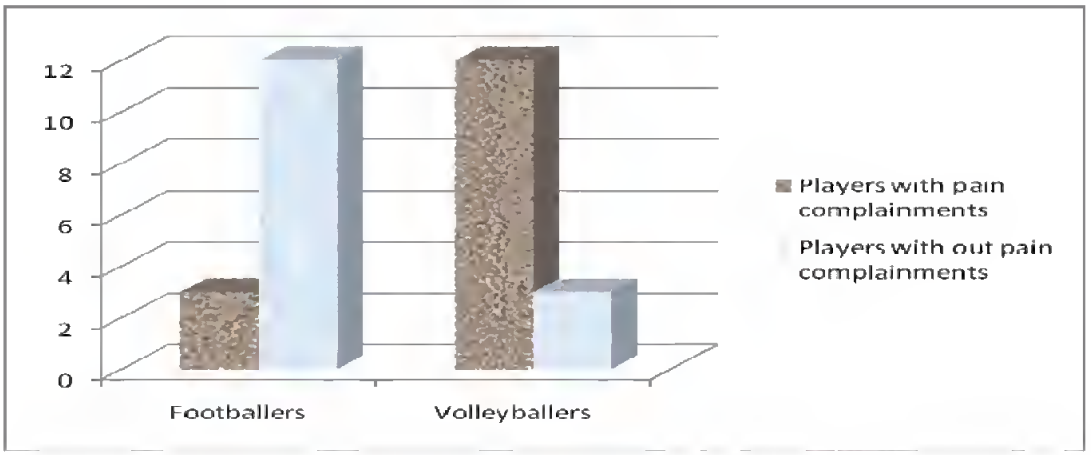

Figure1. Comparison of pain symptoms prevalence in volleyball and football players.

In both research groups, in case of the volleyball players as well as the footballers, pain in the back section was predominant (100%). Volleyballers suffered from pain in the buttock area (N=8; 66%) and thigh pain (N=2; 17%). Pain in the buttocks was confirmed only in case of 1 footballer. The pain did not radiate towards the shin or foot in either of the researched groups.

The rate of pain symptoms experienced by the volleyball players and evaluated in acc. to VAS scale ranged between 4 and 8 points, 4.46 ± 1.5 points on average. Rate of the same symptoms amongst the footballers ranged between 7 and 10 points, 8.33 ± 1.5 points on average.

Most frequently, the pain was caused by a strenuous training in the group of volleyball players (N=5; 41.7%). As regards the footballers, pain ailments were present only while moving (N=3; 100%).

The length of pain symptoms occurrence varied in both groups. Pain symptoms amongst the volleyball players most typically lasted up to 1 week (N=6; 50%), whereas the footballers experienced the same for the maximum period of 3 weeks (N=2; 33%).

Pain symptoms prevailing amongst members of both research groups were most often treated with a massage. It was applied in 83.3% cases of volleyball players (N=10) and 100% cases of the footballers (N=3). Soft tissue mobilisation and McKenzie therapy were applied in the group of volleyball players (16.7%). Movement range limitations in lumbosacral section of the spine both in case of football and volleyball players were not observed.

There were no significant differences between the results obtained with SLR test and abdominal muscle strength test according to Lovett scale. Significant differences amongst the volleyball players were revealed as a result of Patrica Fabre test, Thomas' test and contracture of rectus femoris muscle test. A positive sign in Patricia Fabre test was more frequent amongst the footballers: 14 out of 15 players (SD ± 0.51) as compared to the volleyballers where a positive sign

appeared among 8 out of 15 players (SD ± 0,25). This parameter was statistically significant, χ^2=6.14 (p=0.013). (tab. 2)

Table 2. Patrica Fabre test results

Discipline	Positive sign	Negative sign	Total
Volleyball players (N=15)	8	7	15
Football players (N=15)	14	1	15
All	22	8	30

Football players are the group where a positive sign of Thomas' test was more prevailing, covering 7 out of 15 sportsmen as compared to the volleyball players where the sign appeared in case of 2 out of 15 subjects. The variable was statistically relevant χ^2=3.97 (p=0.046). (tab. 3)

Table 3. Thomas' test results

Discipline	Positive sign	Negative sign	Total
Volleyball players (N=15)	2	13	15
Football players (N=15)	7	8	15
All	9	21	30

Football players are the group where a positive sign of the test was decidedly more prevailing, covering 9 out of 15 sportsmen as compared to the volleyball players where the sign did not appear at all. The variable is statistically relevant χ^2=12.86 (p=0.001). (tab. 4)

Table 4. Contracture of rectus femoris muscle test result

Discipline	Positive sign	Negative sign	Total
Volleyball players (N=15)	0	15	15
Football players (N=15)	9	6	15
All	9	21	30

Statistical analysis covered the influence of individual variables on prevalence of pain symptoms in lumbosacral section of the spine. A statistically relevant dependence between age and training period versus the prevalence of pain symptoms amongst the players was observed. A number of pain episodes, including pain prevalence in lumbosacral section, is increasing with age and time of practising a sport. Correlation coefficient for age r. = 0.039 (p=0.033), correlation coefficient for sport practising time r.=0.425 (p=0.019).

Statistically relevant relation between the height (p=0.077) and weight (p=1.25) versus the prevalence of pain symptoms in lubosacral section of the spine was not observed. (tab. 5)

Table 5. The analysis of dependences between the prevalence of pain symptoms and age, weight, height as well as time of sport practising.

Prevalence of the symptoms against:	r.(X, Y)	p	Relevant
Age	0.391	0.033	30
Weight	0.286	0.125	30
Height	0.328	0.077	30
Sport practising time	0,425	0,019	30

Lack of statistically relevant dependence between pain symptoms prevalence in lumbosacral section of the spine against a positive sign in Patrica Fabre test (correlation coefficient r.=0.15) and Thomas' test (correlation coefficient r.=0.21) was observed. Poor negative correlation was observed as regards the dependence of pain symptoms prevalence and contracture of rectus femoris muscle test (correlation coefficient r.=0.50).

DISCUSSION

Contemporary sport often leads to spine strains and deformations. High repeatability of the same exercises and moves, which is currently observed in competitive sports requires high endurance of the spine. The construction of the spine causes that the greatest load during physical exercise is transferred to the lumbar segment of the spine, and increased physical activity in sport exposes especially this sector of the spine to excess exploitation and to the influence of high loads and pressures at different levels. The most frequent causes of spinal pain symptoms in sportsmen are faulty posture, innate tendency to its development, structural defects of the locomotor system, and most importantly, excess training strains, as well an methodological and organizational mistakes (for example by disregarding asymmetric strains in numerous sport disciplines). In most disciplines there occur injuries, micro-injuries and excessive spine strains, which initiate a pathological process connected to pain symptoms. Therefore, the perspective of spine diseases in sportsmen should be considered as a consequence of practicing sports, however usually no attention is paid to the condition of the spine in players until pains in the back appear. Although spine injuries constitute only 2 to 4 % of all injuries in sports, they are

usually very complicated and they cause significant difficulties as far as proper diagnostics and treatment are concerned (Żytkowski et al. 2004).

One of the main aims of the research was to evaluate the degree and frequency of prevalence of pain symptoms in lumbosacral spine in professional sportsmen. Volleyball and football belong to the most often practiced sports all around the world and they are very popular. The different specificity of both games establishes different expectations for footballers and volleyballers in order to achieve the highest sports level in their discipline. Professional volleyballers, as well as footballers, due to extreme and permanent strains during trainings and games are exposed to risk of lumbosacral spine pain symptoms prevalence.

Volleyball is a team game with restricted contact between the players and practicing it is not devoid of injuries. Research conducted on Scandinavian volleyballers proved that the frequency of injuries among them was comparable to the frequency of injuries in footballers, handballers, hokey players and only slightly lower than among basketballers, although they belong to team games with direct contact between the players (Lennard et al. 2008). A different opinion is advocated by Glinkowski, who observed in his research that the number of injuries connected to football amounts at approximately 50-60% of all injuries in sports and football is the most injury-inducing sport (Glinkowski 2000).

The frequency of "low-back pains" prevalence in volleyballers amounts to approximately 10-14% of all dysfunctions connected to practicing of this discipline and they are the fourth most frequently observed pathology of the locomotor system in volleyballers (Lennard et al. 2008). Whereas in footballers, "low-back pains" are classified in the group of chest injuries, abdominal injuries and pelvic girdle injuries and they constitute only up to 10% of all injuries in football. Dziak, in his research on players of different sports disciplines, treated for "low-back pains", established the average age of spine pains prevalence in particular disciplines. Volleyball was at the 10^{th} place and the average age of "low-back pains" prevalence in players was 23. In the group of the examined sportsmen there was not even one footballer (Dziak 1994). The results of my research confirm the fact that volleyball compared to football is a discipline, in which lumbosacral spine pain symptoms are significantly more frequently observed. From among 15 selected volleyballers, in as many as 12 players (80%) back pains in lower segment of the spine were observed, whereas in footballers "low-back pains" were observed only in 3 of 15 examined players (20%).

High dynamics of volleyball requires the players to learn such skills as: serve, block, overhead and forearm pass. Volleyball players during the

games, as well as during trainings, many times change their body position fromfull extension to bending lumbar spine foreward, with a sudden bend of dorsal muscles. Repetitive lumbar spine extension causes excessive pressure on the back elements of the spine, whereas bending of the spine exposes the intervertebral disc to significant risk of injury. Performance of extension and bending is the basic element of most exercises, which in competitive sport significantly exceed the average amplitude of movements, especially in volleyball players.

In volleyball, the significant number of high jumps performed by the players and often bad technique of landing after shot, which is accompanied by casual twisting movements of the torso, may lead to increased risk of lumbosacral spine injury. Rapid changes of position decrease the adjustment capabilities of the intervertebral discs and of the dorsal muscles. During the 1.5 hours of a volleyball game, this type of load repeat in each player approximately 100 times. During the game itself, the symmetrically increasing pressure in the intervertebral disc increases the flexibility of the annulus fibrosus, and the nucleus pulposus, under the influence of constantly repeating pressures, loses its capability of hydratation and undergoes gradual degradation, which with time causes spinal pain symptoms.

Leonnard T. is the author of the thesis that also frequent injuries of lower limbs may elevate the risk of "low-back pains". As the author claims in his pilot study, connection had been proven between prevalence of past lumbosacral spine pain symptoms in volleyballers and the observed elevated muscle tone in hip flexors, the difference in lower limbs length, instability and overload of lower limbs. Moreover, in my research I also observed prevalence of contractures in hip joints in volleyballers and footballers with lower spine pain symptoms. In the group of 15 examined volleyballers, 7 (58%) from 12 players with lumbosacral spine pain symptoms, a positive result of Patrcia Fabre test was observed. Two out of three players, who did not have pain symptoms, also had a positive result of the test. On the basis of the foregoing, it could be suggested that the prevalence of "low-back pains" is connected to the prevalence of contractures of hip joints. However, when we compare the volleyballers to the studied group of footballers, in which out of 15 players, as many as 14 had a positive result of Patrcia test, and only 2 of them suffered from "lower-back pains", there is some doubt and discrepancy, as 97% of footballers had hip joint contractures and only 20% of them suffered from back pain symptoms. The analysis of my own results proved that there is no statistically significant connection between

prevalence of lumbosacral spine pain symptoms and a positive result of Patrica Fabre test.

Other factors that might contribute to more frequent incidence of spine injuries in volleyball players as compared to footballers include age, professional sport practising time and diversity of the surface where volleyball game is organised. The dependence between the sportsmen age and pain symptoms prevalence in lumbosacral section of the spine turned out to be of statistical relevance in the research performed by the author. Volleyball players formed a research group that was definitely older as compared to the football players group. The average age of the volleyballers was 26.87 years, versus 21.13 years amongst the footballers. The dependence between spine pains prevalence and the number of years of practising the sport also appeared to have its statistical relevance. Period of sport activity was longer in case of the volleyball players than in footballers. Average period of sport practised by volleyball players amounted to 13.73 years, and 9.20 years in case of the footballers. The obtained results proved compatibility of opinions on the influence of age and training period on the number of back pain symptoms in sportsmen. The footballers team was younger than the volleyball group which could have its impact on lack of the ailments. Leonnard T. states, that the incidence of intervertebral disc injuries in the lumbosacral section of the spine is rare in case of younger sportsmen. Reliability of the research can be confirmed by the fact, that majority of expert literature provides the age of 20 as the turning point after which the first regressive changes in posterolateral fragment of fibrous rings start to appear. Onset of the disease falls approx. after the age of 30. As a result of excessive training loads as well as aggregating injuries and microinjuries, the age limit after which degenerative disease of intervertebral disc amongst the sportsmen starts to develop may be reduced (Lennard et al. 2008).

Each discipline has a different influence on the locomotor system and a sportsman's posture. The players adapt themselves to the requirements imposed by the given discipline. Exceptionally slim, leptosomatic bodystructure, with kifoidalnym posture type was observed amongst the volleyballers, whereas the football players feature strong and athletic body-build.

Analysis of the results did not reveal any influence of weight or height of the players on the prevalence of pain symptoms in lumbosacral section of the spine (Starosta 1993). Starosta W. points out that practising such sports as volleyball or football obliges the player to perform long-lasting asymmetrical movements in a fixed position which is conducive to

the occurrence of adverse changes in the bone structure, especially as regards deformations in the lumbosacral section of the spine. Taking into consideration contemporary training loads, performance of asymmetrical exercises and single-sided and permanent strain of the same parts of the body, coupled with microinjuries, may lead to overload changes of certain sections of the spine ending up with serious injuries. Majority of sportsmen develop ineffective motor patterns which is due to asymmetrical power and flexibility. In the author's opinion, developing movement symmetrisation may be one of the most effective methods preventing injuries, taking load off the dominating side and improving functional conditions of the spine (Starosta 1993).

It has been demonstrated that back pains may originate from not only excessive overloads with additional load and leaning of the trunk, but also from the presence of kyphotisation of the lumbar section in the sitting position, which may be the starting point of disorders in the locomotor system of the spine. As a result of a high level of team games, frequent changes of the players during a game, especially as regards volleyball games may contribute to the increased risk of spine injuries. The players start the game with a worm-up both in case of volleyball and football. Next, half of the team sits on the substitutes' bench in kyphotisation position. The research performed on academic players revealed, that sitting on a substitutes' bench during a game after the worm-up entailed an increased stiffness of the spine and higher risk of lumbar spine injury when additional load was applied. The players waiting to enter the game should be in constant movement or alternatively positioned lying on the abdomen, which prevents excessive pressure on the intervertebral discs.

The research conducted on sportsmen by Zeyland-Malawka et al. proved that overload and degenerative changes illustrated in an x-ray image, were more frequent amongst players practising the sports where heavy loads on the spine are required, whereas the changes were not observed in the sportsmen who do not perform power exercises. No changes were disclosed in the x-ray images of the sportsmen suffering from back pain. Appropriately reinforced muscular corset of the trunk shall presumably constitute a stabilising protection of the spine, securing its correct function, in spite of the obstacles. On the other hand though, excessive overstrain on the muscular-ligamentous system imposed during strenuous trainings and competitions, may in time result in pain ailments. The disciplines where technique does not impose direct loads on the spine are also exposed to the occurrence of spinal pain symptoms prevalence, which must always be accounted for (Zeyland-Malawka et al. 1991).

The literature provides hardly any information covering a negative influence of practising sports on the spine. The most serious injuries originate in those individuals who are already suffering from pathological changes in the spine area when they start intensive movement activity. Hence the necessity of a thorough classification of individuals subject to practicing professional sports. Obviously, not all posture defects shall be regarded as contra-indication to practising sports, yet certain actions in order to eliminate them should always be undertaken and sportsmen should undergo regular medical check-ups (Żytkowski 2001).

Sport phenomenon in modern civilisation is unparalleled. Growing interest in professional sports has resulted in the competition between athletes in gaining fame, titles and money, which they strive for by way of rigid training and rest regime. The tendency to look for maximum short-cuts on the way to a sport success, contrary to the capabilities of our locomotor system, causes its overloads frequently made up for with an athlete's aspirations and strong will. A professional sportsman is focused in achieving results and is often exposed to the pressure imposed by the environment. In turn, it results in camouflaging minor, as it seems, injuries in order to remain in the mainstream business. Top class palyers often underestimate pain symptoms, for fear of losing a chance to participate in competitions and financial loses. Intensive improvement of movements and increasing muscle strength are carried out carelessly and without a thought on the locomotor system which, in spite of all the advantages of an athlete's body, is subject to biology rules, equal to every one. Fast tissue wear is the price for excessive exploitation of organism. Therefore, an appropriate training plan is crucial in "low back pain" prevention: adaptation of loads to the capabilities of a player, training individualisation, development of correct motor patterns and rest. The preventive measures shall additionally cover technical education of coaches in the field of anatomy and biomechanics of the spine, as well as the principles of physical efforts ergonomy (Dziak et al. 2000).

As Garlicki M. points out, the development of professional sports shall above all and apart from highly qualified coach staff, suitable organisation and costly equipment, involve considerate medical care. In Garlicki's opinion, a thorough selection of the youth and directing them towards various disciplines, permanent assistance aimed at preventing disorders or injuries, and finally, professional treatment in case if the co-called sports injuries, are of utmost importance. Shortening the treatment stage, arbitrary changes introduced into the treatment program, negligence and discontinuation of the treatment by a player is favourable to recurrence

of dysfunctions and equivalent to premature termination of the career. The advantages resulting from practising sports professionally dominate over the possibility of injuries, fractures, degenerative changes, yet the hazards shall never be ignored and the best possible solutions must be selected (Garlicki et al. 2001).

CONCLUSIONS

1. Pain syndromes in the lumbosacral section of the spine are more frequent amongst volleyball players than among footballers.
2. Prevalence of spine pain symptoms amongst sportsmen does not limit the range of movements in lumbosacral section of the spine.

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Finger length ratio (2D:4D) as a predictor of psychological aspects of human functioning and sports activity – research review

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Keywords: finger length ratio, fingers, testosterone, psychology, sport

Abstract

Previous studies have demonstrated that the relation between the length of the second digit and the length of the fourth digit (2D:4D) is sexually dimorphic. Digit ratio is lower in men than in women. The gender dissimilarities are being explained with different prenatal testosterone exposure. It is claimed that higher level of prenatal testosterone is negatively correlated with 2D:4D. In the following research review we would like to present the relation between digit ratio and psychological aspects of human functioning as well as sports activity. Published research indicated that high level of prenatal testosterone is associated with the increase of visual and spatial abilities, aggressiveness, frequency of autism and with the decrease of agreeableness. On the other hand, low result of digit ratio is connected with the increase of physical fitness, exercise frequency, sport achievements or endurance. These findings should be interesting for trainers or sport psychologist, because 2D:4D may be a good predictor in introductory talent identification in sports.

Introduction

Human traits, preferences and abilities are nowadays being measured with the usage of many complicated methodological tools. It seems unlikely that such a common thing as the length of human digits can be a predictor of physical fitness or disease predisposition. In the following research review we would like to present the phenomenon of the digit ratio and relate it to psychological aspects of human functioning. We will also describe the correlations between 2D:4D and sport activity.

Digit ratio (2D:4D)

Digit ratio (2D:4D) is the relation between the length of the second digit (index finger) and the length of the fourth digit (ring finger). Among women 2D:4D is higher, because the lengths of both digits are similar or there is a visible

majority of the index finger. Men have lower digit ratio because in great number of cases the index finger is shorter than the ring finger (Manning 2002a). The gender dissimilarities are being explained with different hormone exposure, especially testosterone, in fetal period. The length of digits can be measured in a few ways. The most successful method is the computer-assisted analysis (Allaway and other 2009). The digit ratio can also be measured directly with the usage of a ruler, as well as the least precise – hand photocopies (Manning and other 2005).

The history of research

The length of fingers has become the subject of interest amongst many scientists since the second half of 19th century. In 1875, Ecker was the first to notice that the relation between the index and ring fingers can have three variants. In the first option the second digit is shorter than the fourth one. In the second example the digits are equal. In the last case the ring finger is longer than the index finger. Mantegazza, Grüning and Baker noticed that all three variants concern both genders. In 1930 George proved that among men dominates the first variant and among women – the third (cited according to Phelps 1952). The explanation of the aforementioned results was the work of Phelps (1952) who stated that the length of digits is hereditary. He concluded that the gene responsible for 2<4 variant is dominant in males, The same gene is recessive in women which makes the 2>4 variant more possible. Approximately at the same time, a German psychologist Hans-Dieter Rösler conducted a series of novelty research in which he compared the digit ratio with developmental changes, mental disabilities and heritage (Voracek, Dressler, Loibl 2008). That fact had not been notified for years, so the pioneer of 2D:4D in psychology research is considered Wilson. This author, in 1983, published a work concerning correlations between the length of fingers and assertiveness with women. He is also the creator of the term *„digit ratio"*. Wilson suggested, that differences between male and female concerning 2D:4D can be caused by prenatal hormone exposure (Wilson 1983). This concept was verified for the first time in 1998 by Manning who nowadays is considered the most important figure in this field of research.

Digit ratio and sex hormones

We may find that in the published research till now, there is one dominating thesis that gender differences in 2D:4D are indirectly caused by sex hormones in fetal period (Manning and other 2003; Lutchmaya and other 2004). Manning and other proved that a great amount of prenatal testosterone in men is negatively correlated with the length of right hand fingers. They also stated that large amounts of estrogen in women positively correlate with 2D:4D (Manning and other 1998). The research conducted on a group of Congenital Adrenal Hyperplasia (CAH) patients proves that testosterone is associated with digit ratio. Intensive androgen production, including testosterone, in fetal period causes men and women with CAH to have lower 2D:4D than healthy representatives of general population

(Brown 2002; Ökten, Kalyoncu, Yaris 2002; McIntyre 2006). Another proof for this thesis is connected with a gene responsible for the production of androgens receptors (AR). Changes in this particular gene involve increase of vulnerability to testosterone. Men who have confirmed changes in AR have also lower digit ratio. 2D:4D does not change in adolescent period what confirms that digit ratio differences are partly caused by vulnerability to testosterone exposure in fetal period (Lutchmaya and other 2004).

Digit ratio and psychological aspects of human functioning

Published research point out to a relation between digit ratio and aggressiveness. Within both sexes lower 2D:4D is correlated with higher aggressiveness (Hampson, Ellis, Tenk 2008). Sexual dimorphism appears in many aggressive forms. Bailey and Hurd (2005a) proved that higher level of testosterone is associated with the increase of male physical aggression, however it does not have influence on verbal aggression, anger or hostility. Women's lower 2D:4D correlates with indirect forms of aggression such as: guilt induction, viciousness or social exclusion (Coyne and other 2007).

In one of the first articles connecting 2D:4D and psychological aspects of human functioning, Wilson claimed that women with lower digit ratio described themselves as assertive (Wilson 1983). This thesis was verified by Freeman and other (2005) who conducted research on a group of women in which no connections between digit ratio and assertiveness had been found. Freeman's results were confirmed by following studies, which moreover pointed out to the lack of correlation in male group (Hampson, Ellis, Tenk 2008; Voracek 2009).

The relation of finger length was also confronted with five factor personality model by Costa and other (2004) who researched the subject, reached a conclusion that men's digit ratio does not correlate with any of the personality factors. Among women, the research confirmed a correlation between neuroticism and right-hand 2D:4D as well as a negative correlation concerning agreeableness and right-hand 2D:4D. The last result surprised the authors and they assumed that it is caused by a type I error.

Another research concerning relation between personality factors and digit ratio showed that the only meaningful result was a positive correlation between agreeableness and right-hand 2D:4D including both men and women (Luxen, Buunk 2005). This result can be confirmed by the fact that prenatal testosterone is associated with the need of dominance and rivalry which excludes agreeableness (Salvador and other 2003).

Digit ratio was also paired with intelligence. Conducted research point to no distinct relations between cognitive functioning and 2D:4D (Austin and other 2002). There are, however, analyses in which lower digit ratio correlates with higher scores in numerical intelligence, especially women's (Luxen, Buunk 2005; Kempel and other 2005). Another area in which distinctions about the influence of prenatal testosterone on cognitive functioning appear, concern visual and spatial

abilities. Some of the researchers prove that characteristic for men visual and spatial abilities (Voyer, Voyer, Bryden 1995) are negatively correlated with digit ratio. Women with lower 2D:4D had better visual and spatial abilities which confirms the above (Kempel and other 2005; Csathó and other 2001). On the other hand some existing studies had not shown any relations in the discussed topic (Hampson, Ellis, Tenk 2008; van Anders, Hampson 2005). In this case it seems appropriate to claim that there is a tendency to simultaneous increase of visual and spatial abilities with the decrease of 2D:4D (Puts and other 2008).

Different results appear when the length of fingers is paired with sensation seeking. Austin and other (2002), Fink, Manning, Neave (2004), Hampson, Ellis, Tenk (2008) achieved results in which decrease of 2D:4D correlated with the increase of sensation seeking. On the contrary, among latest publications the most popular thesis is the one that concerns the lack of relation between the discussed variables (Eachus 2007; Campbell and other 2010). Conducted meta-analysis suggests that 2D:4D does not bind with sensation seeking. Earlier, contradictory results are being explained with the fact that testosterone is simply one of many biological sources of high results is sensation seeking (Voracek, Tran, Dressler 2010).

Synonymous results were obtained when confronting gender roles with digit ratio. 2D:4D low results of women are associated with characteristic male role behaviors (Csathó and other 2003). Analogically, high 2D:4D results of men are associated to greater extent with female role behaviors (Rammsayer, Troche 2007).

Written articles point out to the relation of digit ratio and psychological disorders. Among autistic patients, regardless of gender, low 2D:4D results dominate (Voracek, Dressler 2006; Voracek 2008; De Bruin and other 2009). These findings suggest the possibility of interaction between prenatal testosterone and development of autism (Manning, Baron-Cohen 2001). Studies include the repeating thesis that there is a correlation of high 2D:4D results and schizophrenia (Walder and other 2006; Voracek 2008). Depression is also positive correlated with digit ratio (Everdone, Aleksander 2009). Women statistically more often experience affective disorders. It seems logical that men with higher 2D:4D are more vulnareble to depression (Bailey, Hurd 2005b).

Digit ratio and sports activity

Men are usually taller, stronger and faster than women. Mentioned differences escalate in adolescent period when testosterone plays a major role (Thomas, French 1985). This hormone influences physical fitness (Isidori and other 2005).

Manning and Taylor (2001) were the first researchers who studied the connection between digit ratio and physical fitness. Sportsmen had lower 2D:4D results than the control group. These findings confirm the thesis about the influence of testosterone on sports potential. This relation has also been researched in groups of females. The results have shown that sportswomen indeed have lower digit ratio

when compared with women who do not participate in sport activity (Hönekopp, Manning, Müller 2006; Paul and other 2006; Tester, Campbell 2007). Conducted meta-analysis confirmed previous results (Hönekopp, Schuster 2010). One must acknowledge that prenatal testosterone beneficently influences motor abilities, regardless of sex.

Within both genders, a negative correlation between 2D:4D and sports predispositions appears in many different sports disciplines such as swimming, skiing, fencing or football (Manning, Taylor 2001; Manning 2002b; Voracek and other 2006; Jürimäe and other 2008). An existing assumption claims that the mentioned relation will appear in dominant number of sports disciplines.

2D:4D is also connected with the frequency of men's physical exercises. The lower is the digit ratio result the higher is the physical activity of the unit (Manning, Bundererd, Taylor 2003). The explanation of this outcome can be the influence of testosterone on competitiveness in men. The need of competition makes men take up sports activities more frequently. Men who exercise want to upgrade their fitness and compare it with the fitness of others. All these factors may cause the observed increase of exercise frequency. Other hypothetical explanation of greater activity among men is the influence of testosterone on cardio-vascular system performance (Hönekopp, Manning, Müller 2006) Heart diseases to greater extent concern men, however it does not necessarily include the influence of testosterone. A research conducted on a group of patients after a myocardial infarction confirms this fact. Men who experienced a myocardial infarction at a later age had significantly lower 2D:4D when compared to men who experienced myocardial infarction at early age (Manning, Bundered 2001). Prenatal testosterone may therefore beneficently influence the effectiveness of cardio-vascular system performance, facilitate the participation in sports and increase the frequency of physical exercises.

Digit ratio is different in people who practice sport and people who do not. Moreover, 2D:4D causes different results when comparing people who practice the same sports discipline on different levels. Sportswomen who participate in the Olympics or other international events have lower 2D:4D results than students of academies of physical education (Pokrywka and other 2005). Men who compose national sports teams also have lower digit ratio results when compared with players who do not qualify on that level. Similar differences were observed in football players who appear in main teams and the ones who play in reserve teams (Manning, Taylor 2001). Among students, their notes from physical education were negatively correlated with their digit ratio (Hönekopp, Manning, Müller 2006). These examples show to what extent 2D:4D predicts sports abilities.

Physical fitness is a general idea. Researchers who study 2D:4D are trying to conclude which of the elements of physical fitness are especially connected with testosterone. Paul and other (2006) studied 2D:4D among many sports disciplines. They noticed that the strongest correlation concerns runners and relates to a connection between 2D:4D and sports potential. Endurance is a component

important in running as well as other sports disciplines. Manning, Morris, Caswell (2007) compared the endurance of runners with 2D:4D and the results shown that digit ratio decreases with the increase of endurance. This fact to some extent allows to understand the connection between 2D:4D and the achievements of players including those who train other sports disciplines. Speed is another composite of running which is also important in other disciplines. Low digit ratio is connected with good results in speed tests. This correlation is however weaker than the relation between 2D:4D and endurance (Manning, Hill 2009). On the basis of research one might conclude that endurance, being a significant composite of physical fitness is connected with the exposure of prenatal testosterone.

Summary

Digit ratio is fairly a new discovery in the world of science. In the last decade the increase of the number of research concerning 2D:4D could be observed. Scientists look for connections between the length of fingers and health, sexual orientation, cognitive processes, personality, abilities etc. Existing data often lead to different conclusions and the problem of 2D:4D needs further analysis. The certainty about digit ratio relates to sexual dimorphism. Women have higher 2D:4D results which is explained with lower level of prenatal testosterone. Men have lower digit ratio results which is explained with higher level of prenatal testosterone. The research on testosterone proved that there are strong associations between this hormone and physical fitness. The results of studies about relation between digit ratio and sports abilities point to negative correlation between digit ratio and physical fitness. One of the components of physical fitness – endurance especially correlates with prenatal testosterone. Significant negative correlation concerns 2D:4D and speed, exercise frequency or sports achievements. It is important to continue further, more directive research in sport. Relation between digit ratio and muscle strength is especially interesting and worth analyzing. Interesting data might be provided when studying the relations between maximal oxygen consumption, glucose tolerance and flexibility.

Relations between digit ratio and psychological aspects of human functioning are also in the field of researchers' interests. Studies prove that within both sexes, low 2D:4D is connected to higher level of aggressiveness. An interesting finding is the negative correlation between digit ratio and visual and spatial abilities. Not surprisingly as one may think, the fact that women's sex roles are characterized by high level of digit ratio, while men's by low. From the analysis of the connection of the length of fingers and psychological disorders comes a fact that autistic patients suffer from testosterone in prenatal period. Schizophrenia and depression are correlated positively with 2D:4D.

Interesting direction for future research would be a combination of psychological view and sports. Besides the previously studied visual and spatial abilities which play a very significant role in sports activity, it is worth to focus attention on such topics as risk taking or motivation to achieve. Their possible

relation to prenatal testosterone could give much interesting information to developing sport psychology.

Digit ratio is connected to many aspects of human functioning. 2D:4D allows to conclude about sports predispositions as well as certain psychological traits. It may be that the development of research concerning digit ratio will help in the creation of introductory talent identification in sports.

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Determinants of sports best results in young fencers' opinion

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Keywords: sports result, fencing, educational values of sport, coach's competence, competitor's competence

Abstract

Sports activity is one of the most popular human activities which affect human attitudes, particularly among young people. In the aspect of this approach, an attempt was made to determine the effect of practicing fencing on changes in psychosocial traits among young fencers and assessment of which factors are of decisive importance in the context of achievement of best results.

Two scales, modified for the research purposes, were employed for the investigations: Survey of Values in Sport by D. Simmons and R.V. Dickinson and the Survey of Educational Values in Sports by Z. Żukowska.

Initial investigations were carried out in 2010 among the fencers in Konin Fencing Club. The study covered 30 persons with age average of 15 year.

As results from pilot study, sociocentric values manifested in the course of practicing of the selected form of physical activity (fencing) were attached great importance, which may provide ideal opportunities for socialization of young people during the process of involvement in physical culture.

Another conclusion concerning effectiveness of sports results is that, according to the competitors, they depend on personality traits of coaches rather than their professional competence and, in the case of competitors, they are determined by their personality rather than morphological conditionings.

Introduction

In social sciences in the domain of professional sport among young people, the emphasis is put on some elements which characterize sport. They include, among other things, activity, competition and achievements. R. Żukowski (2007) argues that physical activity is a fundamental dimension which ensures positive development effects. On the other hand, competition is particularly dominant in sports, with continuous occurrence of a variety of situations, which in consequence leads to the necessity of quick response to the conditions. Mutual assessment of competitors, comparison of their achievements and abilities and self-improvement

are also essential. Therefore, as emphasized by R. Żukowski, competition is a source of progress and a stimuli which motivates to take action.

The third element is achievement. This problem is relatively complex since achievement might adopt a variety of forms e.g.: record, medal, diplomas for improved ranking position. The achievements may also be not connected with sports result, i.e. improvement in health, physical capacity or better free time management.

J. Wiederek (1996) points to another essential factor in the process of training, i.e. motivation. This researcher argues that its importance manifests in the fact that it seems impossible to take the trouble of hard training regimes without strong motivation. The strength of motivation determines the quality, effectiveness of actions, effectiveness of training process and results during competitions (Kyriakou 1993). Z. Kyriakou reported the results of investigations carried out in Western countries and emphasized that main motivators for amateurs sportsmen include health, internal pleasure and sense of affiliation.

M. Sakowski (1996) points to the results of psychological research on personality of sportsmen and he reports the existence of particular personalities and a set of traits which condition achievement of excellent sports results. Many of them concern congenital traits while others are acquired and formed by the environment and own experience. Among the latter, the author emphasizes the importance of knowledge about myself, since this allows contestants to develop self-assessment skills (including self-criticism and ethical considerations).

According to J. Czerwiński and R. Tymański (1997), proper control of training process is underlain by knowledge of the effect of individual factors on sports results and determination of their optimal level.

Determination of the factors which impact on the level of performance and results achieved during competition is not an obvious and simple task because more complex sports disciplines involve higher number of factors. Moreover, it is not enough to sum them up (traits, abilities, skills, psychical processes) but one should take into consideration their mutual complex interrelations.

Coaches

Investigations on coaches' traits allows for identification of a number of factors of efficiency of their work. Many researchers emphasize the importance of temperament and personality at work while others point to educational role of coaches (orientation towards achievement of results but also towards development of athlete's personality) or relate effectiveness to coaches qualifications or professional and material status (Żukowska 2000).

As emphasized by M. Herzig (2002) coach-athlete arrangement is a purposeful arrangement, which incorporates personality conditionings, interpersonal skills, ability to explain and persuade, methods of advising athletes of mistakes and emotional control.

Z. Czajkowski (1991) argues that important factors are knowing an athlete and discovering of their attitude to sport and fight.

Regardless of different typologies of coach competencies, the most of researchers agree that professional preparation of coaches and pedagogical reflection are essential. According to L. Pasteur 'chance favours the prepared mind'; therefore, knowledge of the factors which motivate to practice the given sports discipline allows coaches for their proper selection during working with competitors.

Educational Values of Fencing

The results from a number of investigations confirm a decisive role of sport in formation of life values (e.g. Karolczak-Biernacka 1996; Simmons, Dickinson 1986).

According to B. Karolczak-Biernacka, 'sport is a voluntary activity, started in order to satisfy the need for playing, showing off, fight or internal improvement throughout systematic development of physical, psychical and volitional traits (Karolczak-Biernacka 1996, s.3). Therefore, the present study is an attempt to determine if fencing is also the type of disciplines which can play a personality-building role.

Specificity of training in fencing

Each sports discipline is complex and shows a specific nature. According to K. Grzegorek (2000), fencing can be numbered among the sports disciplines which enjoy great popularity. However, due to high sports results achieved by representatives of fencing (particularly in younger categories), it seems worth to popularize the sport. Fencing, through its system of training, develops all the traits necessary for existence in the world today: adaptation to ever-changing conditions, responsibility, physical fitness. Additionally, fencing, which uses the aspects of fight, is connected with use and development of competitors' personality, their cognitive styles and individual response to different situations.

Fencing is a sports discipline which does not require distinguishing between special physical traits but puts main emphasis on psychical disposition, which allows for using individual fighting styles in relation to the particular personality and temperament. The necessity to adapt individual fighting styles in relation to the given situation during competition requires from an athlete to adapt individual fighting styles with widely understood psychological situation during fencing fight, abilities to combine own initiative with ability to use the acquired information, understanding relationships which exist in the situation of fencing fight, which allows for conscious and optimal behaviour of fencers during fight (Bandach 2000).

Similar opinion was expressed by Z. Czajkowski (1991), who emphasized the fact that a number of factors in fencing affect the results achieved during competition. They might depend on personality traits of the contestant, temperament, fighting style or the scope and effectiveness of actions taken during competitions.

As results from the considerations above, specific nature of sports training is very complex. Therefore, the focus of the present study was on determination of

the factors which condition sports success of a coach and a competitor in the opinion of young fencers.

Aim of the study

A cognitive aim of the work was to find which factors affect achievement of best results in fencing in competitors' opinion.
Practical goal is to determine pedagogical guidelines aimed at persons who practice fencing and their coaches.
Research problems can be presented in the form of the following questions:
P1. Can the values popularized through fencing be considered in categories of their educational effect?
P2. Which coach's traits (and to which extent) affect achievement of good results in fencing?
P3. Which competitor's traits (and to which extent) affect achievement of good results in fencing?

Material and methods

The pilot study, which was the starting point to wider investigations of the factors which condition sports results, was carried out in 2010 among the contestants from Konin Fencing Club. The study covered 30 persons with age average of almost 15 years.

Due to a multi-aspect nature of the study, the following research methods and techniques were employed: diagnostics survey and questionnaire. The research tools included: questionnaire composed of 11 question, modified for research purposes of the study: Survey of Values in Sport developed by D. Simmons and R.V. Dickinson and Survey of Educational Values in Sport by Z. Żukowska.

Results

The major group among the studied competitors was boys. In terms of age, fourteen-year-old children are the most numerous group of the studied persons. Detailed characteristics of the studied persons are presented in Fig. 1 and 2.

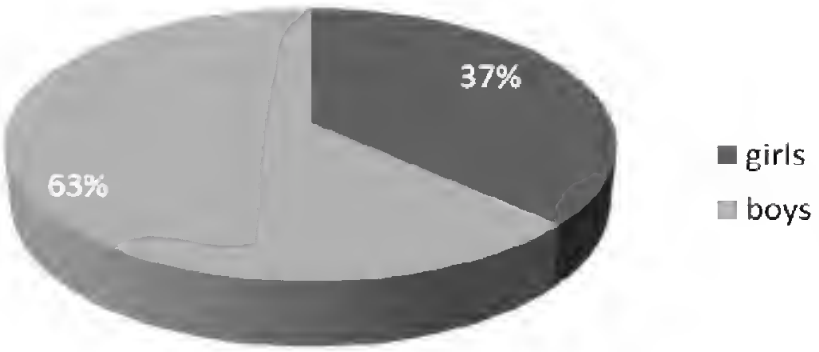

Fig.1. Percentage comparison of both genders

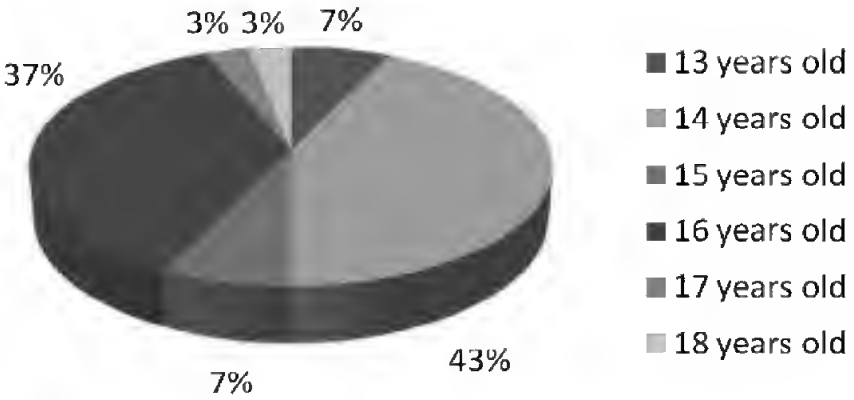

Fig.2. Percentage comparison of age

Among all the fencers, 80% of them practice this sport for the longest time (over 2 years); those who practiced fencing less than two years account for 16.7%. The lowest percentage of the studied subjects train short (3.3%) (Fig. 3). All of the persons demonstrate high frequency of trainings (more than twice a week).

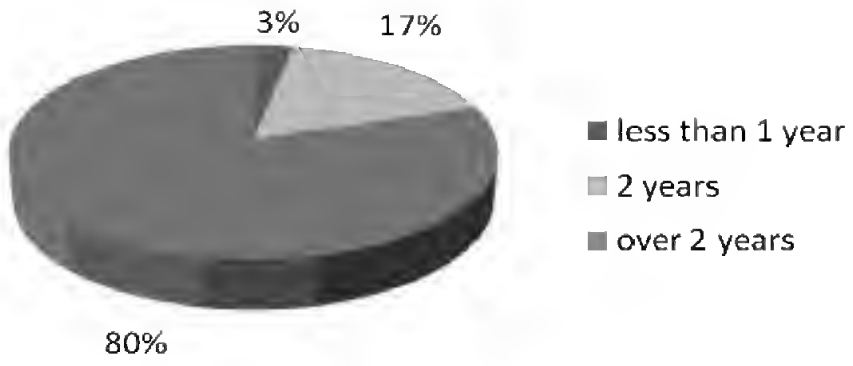

Fig.3. Percentage comparison of training experience among the competitors

In order to determine the importance of fencing compared to different forms of physical activity, the respondents were asked to assess their physical fitness, methods of spending leisure time and the practiced forms of physical activity.

The results of the study show strong involvement in the sports discipline: for most of them (56.6%) fencing is the only sport. Others (43.4%) are also involved in other sports. This is confirmed by the statement that fencing has become their main occupation during the week (50.0%) or treat it as the most important sport compared to other disciplines (53.6%). None of the respondents denied the importance of the practiced discipline and only few reported skipping fencing classes in favour of other occupations (6.7%) (Tab.1).

Tab.1. Importance of fencing in self-assessment of the studied persons.

Importance	Yes	Rather yes	I don't know	Rather no	No
Fencing is my main occupation during the week	**50.0%**	33.3%	13.3%	3.4%	0%
I frequently skip fencing classes in favour of other occupations	6.7%	3.3%	12.5%	36.7%	**46.6%**
Compared to other sport disciplines, fencing is most important to me	**53.6%**	28.6%	17.8%	0%	6.7%

Due to the opportunity to make a multiple choice N≠100

The results of the study do not point to any barriers which make attending trainings difficult among the considerable majority of the studied respondents (73.4%). Only 26.6% of them pointed to the school as a limiting factor.

Furthermore, respondents were asked about the factors which made them take up fencing. The highest influence on respondents was from information from coaches or teachers (53.3%). A relatively high percentage of the respondents (46.6%) pointed to a considerable role of peers in this case. In a part of persons (26.6%) the decision was made because of family traditions. The lowest value was assigned to newspaper articles or treating fencing as cross-training for other sports (3.3%).

Respondents, typically perceive their physical fitness as higher compared to peers (33.3%). Similar fitness level is reported by 26.7% and lower by only 13.3%. Half of them answered that physically active way of spending free time suits them best.

Based on assumption that involvement in different forms of physical activity (fencing) opens up improved opportunities for adaptation to ever-changing conditions of living and is conducive to more efficient self-realization under conditions of threat and civilization challenges, the respondents were asked if they perceived any changed in the selected psychosocial aspects after taking up and practicing fencing.

In order to obtain information about the effect of fencing on the selected personality traits in self-assessment of respondents, the scale of changes in personality traits was construed. Scale reliability was very high and amounted to 0.82.

Most of the respondents, when asked if fencing has affected their selected personality traits, reported some types of effect. The highest percentage of them (83.3%) mentioned improved self-reliance. Slightly fewer (82.8%) pointed to higher sense of responsibility.

Most of fencers reported that they did not observe changes in terms of easiness of solving problems and neatness of clothes (34.5%). Detailed data are presented in Table 2.

Tab.2. Changes as a result of taking up fencing reported by the respondents (data expressed in %)

Changes	Yes	No
Better relationships with peers	73.3	26.7
Ability to respond in difficult situation	72.4	27.6
Easiness of problem-solving	48.3	51.7
Improved self-confidence	73.3	26.7
Enhanced self-reliance	**83.3**	16.7
Higher responsibility	82.8	17.2
Tolerance towards others	65.5	**34.5**
Higher self-discipline	73.3	26.7
Improved neatness and cleanliness of clothes	65.5	**34.5**

Due to the opportunity to make a multiple choice N≠100

These values are found to be predictors of human behaviour (or types of fixed beliefs of an individual). Therefore it seems that recognition of these factors provides the most useful information which characterizes the importance of physical activity in human life (Karolczak-Biernacka 1996).

For this reason it became essential to investigate the conveying strength and effectiveness of sports activity (sport, recreation) as an arena for expressing of different values.

The highest importance among the educational values of fencing was attached to perfectionistic values (ability to stay in good shape and health) as well as allocentric values (opportunity to overcome my own limitations) and sociocentric values (ability to work in a sports team).

The least importance was attached by the respondents to prestige values (source of acclaim among friends). Detailed results are presented in Table 3.

Tab.3. Values of fencing reported by the respondents (data expressed in %)

Value	Important	Less important	Unimportant	I don't know
Opportunity to acquire new skills	60.0	33.3	0	6.7
Source of emotions and excitement	43.3	43.3	0	13.3
Opportunity to rest and relax	43.3	40.0	16.7	0
Opportunity to stay in shape and good health	86.7	3.3	3.3	6.7
Opportunity to overcome my own weakness	83.3	6.7	0	10.0
Pleasure from physical activity	43.3	30.0	16.7	10.0
Ability to work in a sports team	73.3	13.3	10.0	3.3
Source of risk	30.0	36.7	**16.7**	16.7
Opportunity to cooperate with others and helping others	60.0	30.0	6.7	3.3
Pastime	40.0	33.3	16.7	10.0
Demonstration and comparison of my own abilities to others	50.0	16.7	16.7	16.7
Source of acclaim among friends (respect, deference)	53.3	23.3	20.0	3.3

Due to the opportunity to make a multiple choice N≠100

Sports results depend on a number of factors, with one of the most important roles played by coaches and athletes. In order to evaluate the importance of these factors to the effectiveness of sports training, the competitors were asked to specify the factors which they found to have the strongest impact on achievement of best results and depend on coaches.

The results show that the most important factors include traits connected with coach's personality, such as: ability to motivate pupils and attitudes of respect to others. Furthermore, the fencer also pointed to the following traits: ability to solve conflicts and negotiations, and tolerance. The traits connected with professional skills were typically brought to the background (highest percentage of the respondents reported enrichment of training through audiovisual aids to be the least important). Detailed comparison of the results is presented in Table 4.

Tab.4. Factors dependent on coaches (data expressed in %)

Coach's traits	Important	Less important	Unimportant
Ability to manage time during training	86.2	13.8	0
Easy and communicative way of instructing	75.9	20.6	3.5
Ability to encourage fencers to be active	79.3	20.7	0
Use of audiovisual aids	24.2	58.6	**17.2**
Adaptation of training methodology to particular competitors	79.3	17.2	3.5
Attractive training	68.9	31.1	0
Knowledge about fencing	79.3	20.7	0
Encouraging to take up other interests (other sports disciplines)	35.7	**64.3**	0
Being communicative	79.3	20.7	0
Motivating pupils	**96.5**	3.5	0
Building good teams	75.8	20.7	3.5
Flexibility in adaptation of the style of instruction to pupils' maturity	72.4	24.1	3.5
Self-control	79.3	20.7	0
Respect to others	**96.5**	3.5	0
Honesty and justice	89.6	10.4	0
Optimism and cheerfulness	86.2	10.3	3.5
Knowledge of strengths of the pupils	79.3	17.2	3.5
Tolerance	86.2	13.8	0
Ability to solve conflicts and negotiate	86.2	10.3	3.5

Due to the opportunity to make a multiple choice N≠100

The system of coach/athlete is a purposive arrangement, which appears through combination of the actions oriented towards reaching the success by both sides. Therefore, further part focused on the questions concerning elements which are essential to achievement of best results in sport (according to the competitors) (Table 5).

Tab.5. Factors dependent on competitors (data expressed in %)

Competitor's traits	Important	Less important	Unimportant
Resistance to stress	93.3	6.7	0
Motivation (willingness)	**96.7**	3.3	0
Aggression	23.3	36.7	**40.0**
Peacefulness	76.7	20.0	3.3
Ambition	**96.5**	3.5	0
Opportunities to check myself in extreme situations (competitions)	70.0	23.3	6.7
Perspective to win medals	70.0	23.3	6.7
Perspective to win material rewards	46.7	36.7	16.6
Body built	60.0	36.7	3.3
Physical fitness	86.0	6.9	7.0
Eye-movement coordination (reflex)	93.0	3.5	3.5
Tactical skills	86.7	10.0	3.3
Technical skills	89.7	10.3	0
Age the training was taken up	26.7	**46.7**	26.1
Training experience (in years)	56.7	30.0	13.3
Training frequency (how often)	83.3	16.7	0

Due to the opportunity to make a multiple choice N≠100

It turned out that achievement of good result in fencing is determined by the level of their motivation, ambition and resistance to stress. As can be seen, the personality factors turned out to be more essential than morphological factors.

In combat sports, including fencing, aggression, as a state which impacts on fighting style through its effect on fighting level and response time (as fencers usually win while attacking), would seem to play an important role. Therefore it is surprising that aggression was attached least importance among the respondents.

Summary and conclusions

Difficulties in determination of the effect of the abovementioned factors on sports performance is also caused by the fact that sports results depend on a number of interrelated elements.

During training process a number of problems arise; solving these problems can be facilitated by knowledge and experience of coaches and their personality.

As emphasized by Z. Czajkowski, it is important to realize the fact that 'good results are generated by good competitors whereas good competitors are brought up by good coaches' (cited by Żukowska 2000, p. 32). M. Herzig (2002) argues that coaches, who in coach-competitor arrangement play a decisive role, should also realize that they have considerable impact on competitors, not only through planned activities but also through all their personality.

The results of investigations by other authors, similarly to our study, allow for drawing a conclusion that each coach should be aware of their own personality conditionings, their strengths and weaknesses which are essential from the point of view of the process of sports training and educational effect.

In the case of competitors, sports result will also depend on a number of mutually determining factors, with particular focus on their personality, temperament, intelligence, physical conditions and the level of skills (Bandach 2000).

To sum up, the structure of competitors personality is composed of a number of traits which go into the making of their profiles. This allows for demonstrating the traits which are changing after taking up a particular sports discipline and educational effect. In the case of fencing, the greatest changes can be observed in improved sense of responsibility and self-reliance among the contestants, which allows for confirmation of observations by B. Karolczak-Biernacka that sports disciplines such as fencing can be a personality-building factor.

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Assessment of life-style of students tourism and recreation Kazimierz Wielki University in Bydgoszcz

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Keywords lifestyle, physical activity, students

Abstract

The aim of this study was to assess the state of physical activity and other lifestyle elements of recreation and tourism students at the Kazimierz Wielki University in Bydgoszcz.

The researches were performed by the method of diagnostic survey. The survey was conducted in spring 2010 and comprised 103 students of tourism and recreation at the Kazimierz Wielki University in Bydgoszcz.

The study concluded that students toward recreation and tourism (potential health promoters) are characterized by low levels of certain healthy behaviors, including limited physical activity, which suggests the need for intervention programs aimed at changing behavior antihealthy health promoting behaviors. Most women not taking the regular physical activity, which can contribute to improving their health, so especially women should be encouraged, and also allow them the conditions for regular physical activity, that's means directed for their health-oriented.

Use of pharmacological agents (for medicinal purposes, painkillers) by the students, especially by women, suggests not the best of physical shape and health. Studies have shown that there is a need for practical issues of health education to the degree program in tourism and recreation.

Introduction

In today's world, people are faced with many problems, from which the most troublesome seems to be health problems. It is therefore essential to find solutions conducive to stem the adverse health effects resulting from the development of civilization. Increasingly, in the scientific literature emphasizes the importance of this matter, lifestyle, particularly physical activity. Numerous scientific studies confirm the relationship of mortality to unhealthy lifestyles, particularly those with low physical activity (Blair and Brodney, 1999, Hu G et al, 2004; Haapanen-Niemi, 2000; Barengo et al, 2005, Andersen et al ., 2000, Lee and Lady Walpole, 2001; Schnohr et al, 2003, Dorn et al, 1999). Low levels of physical

activity is a strong and independent predictor of mortality (Hu FB et al, 2004, Fang et al, 2003).

Although many researchers (Twisk et al, 1997, Kemper et al, 1990; Andersen, 1996; Hasselstrom et al, 2002; Twisk et al, 2001; Bartnik, 2002) confirms the relationship between low physical activity in youth with other risk factors for cardiovascular disease, which is one of the greatest threats to life. Knowledge of adult Poles on this subject is still insufficient. The reason may be, still insufficient promote of physical activity. But for a sometime a breakthrough is made in the consciousness of our society. Scientists, health promoters, doctors increasingly focus on the skills associated with a lifestyle in which the leading role of optimal physical activity (Kostencka, 2007).

Lifestyle considered the concept of complex, difficult to clearly identify, referring both to the social group and the individual. These include (in contrast to the lifestyle that is associated with the organization of daily life), typical reactions and patterns formed in the process of socialization (Woynarowska, 2007).

This is a compromise between elections, circumstances and opportunities. From a psychological point of view, health-related lifestyle can be defined as characteristic for the individual system of health behavior, conditioned by knowledge, ideas and beliefs about the world, life and self, temperamental traits, competencies, value system and individual experiences of health and social variables -cultural (SEC, 2005). And health behaviors are defined as activities, activities aimed at health objectives, which may be positive or negative towards health (Heszen-Clement, 1979). Therefore, lifestyle, among others students can be described by different health behaviors, in which the leading role belongs to physical activity. Status of physical activity is determined considering its various kinds.

Aim of work

Objective of the study is to assess the physical activity and other lifestyle elements in group of students of recreation and tourism at the Kazimierz Wielki University in Bydgoszcz.

Material and methods

The survey was conducted in spring 2010 comprised 103 students of tourism and recreation at the Kazimierz Wielki University in Bydgoszcz.

Used method was the diagnostic survey, the survey technique which formula is based on the Questionnaire Survey of the Canadian Institute for Research Skills and Life Style [3] modified and expanded in order to adapt to local conditions and current research problems.

Large utility of survey techniques to assess lifestyle, mainly physical activity from the perspective of behavioral causes that questionnaires are a very popular way of collecting data on physical activity and other health behaviors. Please also note that, in addition to the questionnaire for epidemiological purposes, principally with identifying risk factors, you cannot just describe, but in some ways

promote physical activity. It also allows you to monitor it, the creation of intervention programs and predicting the health of the population (Drabik, 1997).

Research results

Assessment of tourism and recreation students life-style at the Kazimierz Wielki University in Bydgoszcz has enabled the presentation of various health behaviors, including physical activity. Status of physical activity was determined considering the number of its types such as: daily physical activity associated with the daily responsibilities at home, at work or college, any physical activity, or any physical activity undertaken deliberately, the correct regular physical activity, or perform regular physical exercise at least 3 times each week (outside the classroom of physical education), communicational physical activity, connected with the way to overcome the road to school and back, total physical activity, which is the sum of the different activity affecting especially on body weight and physical activity mandatory - physical education lessons. Status of the various types of physical activity of tourism and recreation students is shown in Tables 1 – 6

Table 1 Students state of health behaviors in daily physical activity

TYPE OF HEALTH BEHAVIORS	STAGE	MEN n= 35		WOMEN n=68		TOGETHER n=103	
		n	%	n	%	n	%
DAILY PHYSICAL ACTIVITY	low stage	24	68,57	43	63,24	67	65,05
	medium stage	6	17,14	20	29,41	26	25,24
	high stage	5	14,29	5	7,35	10	9,71
	SUMARY	35	100	68	100	103	100

The study shows that low-level of daily physical activity concerns up 65.05% of students, medium stage concerns 25.24% of students, and only 9.71% students are at a high stage of daily physical activity. This means that big part of students majoring at tourism and recreation at the Kazimierz Wielki University in Bydgoszcz, most of time per day, spent passively: sitting or standing (almost 69% of men and more than 63% of women), about 17% of males and over 29% of women spend their days moderately active, walking or marching, a group of 14.29% of men and 7.35% of women carry out most of the time of intense physical effort.

Table 2 State of health behaviors of students in any physical activity during leisure

TYPE OF HEALTH BEHAVIORS	STAGE	MEN n= 35		WOMEN n=68		TOGETHER n=103	
		n	%	n	%	n	%
ANY PHYSICAL ACTIVITY	activ	29	82,86	34	50	63	61,17
	inactive	6	17,14	34	50	40	38,83
	SUMARY	35	100	68	100	103	100

The study shows that over 61% of students take the test any physical activity (exercises) in his spare time, including up to 82.86% of men and women only 50.1%. However, this activity in many cases, may be sporadic.

Table 3 Students state of health behaviors in communicational physical activity

TYPE OF HEALTH BEHAVIORS	STAGE	MĘŻCZYŹNI n= 35		KOBIETY n=68		TOGETHER n=103	
		n	%	n	%	n	%
COMMUNICATIONAL PHYSICAL ACTIVITY	low stage	20	57,14	46	67,65	66	64,08
	medium stage	6	17,14	9	13,24	15	14,56
	high stage	9	25,71	13	19,12	22	21,36
	SUMARY	35	100	68	100	103	100

Communication physical activity at high stage (on foot or by bicycle over 10 km per week) has 21.36% of the respondents, this applies to 25.71% men and 19.12% women. The highest percentage of students (64.08% including 57.14% of males and 67.65% women) commutes to school by car or public transportation.

Table 4 State of health behaviors of students for total physical activity (total)

TYPE OF HEALTH BEHAVIORS	STAGE	MĘŻCZYŹNI n= 34		KOBIETY n=59		TOGETHER n=93	
		n	%	n	%	n	%
TOTAL PHYSICAL ACTIVITY	low stage	14	41,18	34	57,63	48	51,61
	medium stage	3	8,82	11	18,64	14	15,05
	high stage	17	50,00	14	23,73	31	33,33
	SUMARY	34	100	59	100	93	100

The high level of total physical activity (over 16 hours) concerns 33.33% of the respondents, including 50.0% of men and less than half, because 23.73% of women. Over 15% of respondents felt that it includes no more than 4-16 hours a week. Activity up to 4 hours per week is characterized by a fairly large group - 51.61% of the respondents, while significantly more women (57.63%) than men (41.18%).

Table 5 Students state of health behaviors in regular physical activity

TYPE OF HEALTH BEHAVIOUR	STAGE	MEN n= 34		WOMEN n=59		TOGETHER n=93	
		n	%	n	%	n	%
REGULAR PHYSICAL ACTIVITFR	low stage	14	41,18	34	57,63	48	51,61
	medium stage	3	8,82	11	18,64	14	15,05
	high stage	17	50,00	14	23,73	31	33,33
	SUMARY	34	100	59	100	93	100

Regular exercise at the level of positive impact on health (at least 3 times a week for a minimum of 30 minutes) reported 33.3% of respondents (50.00% men and 23.73% women).

More than 60% not exercise regularly (low stage of the correct regular physical activity) at the 41.18% of males and 57.63% women. 15.05% of students reported an average level of regular activity, that's means two times a week.

Besides of physical activity lifestyle of investigated students are characterized by different health behaviors, which the state shown in tables 6-12.

Table 6 State of health behaviors of students in the frequency of alcohol consumption

TYPE OF HEALTH BEHAVIOUR	STAGE	MEN n= 35		WOMEN n=68		TOGETHER n=103	
		n	%	n	%	n	%
FREQUENCY OF ALCOHOL DRINKING	total lack of consumption	0	0	7	10,29	7	6,80
	rare alcohol drinking	11	31,43	47	69,12	58	56,31
	often alcohol drinking	24	68,57	14	20,59	38	36,89
	SUMARY	35	100	68	100	103	100

Data exposed in Table 6 show that only 10.29% of women and 0% of men does not drink alcohol. The largest group of women (69.12%) drink alcohol infrequently (once a week and less), while for men the highest proportion (68.57%) are people often drinking alcohol (several times a week and more often).

Table 7 Students state of health behaviors in the amount of alcohol drinking

TYPE OF HEALTH BEHAVIOUR	STAGE	MEN n= 35		WOMEN n=61		TOGETHER n=96	
		n	%	n	%	n	%
Total drinking of alcohol	small	2	5,71	52	85,25	54	56,25
	big	33	94,29	9	14,75	42	43,75
	SUMARY	35	100	61,00	100	96,00	100

Analyzing the data shown in Table 7 it can be concluded that the vast majority of men (almost 95%) consume a large amount of alcohol during one meeting (more than 3 glasses of vodka, wine, beer mugs). In the case of women over 85% says that they consume a small amount of alcohol (up to 3 cups).

Table 8 State of students health behaviors in the frequency of drinking coffee

TYPE OF HEALTH BEHAVIOUR	STAGE	MEN n= 35		WOMEN n=68		TOGETHER n=103	
		n	%	n	%	n	%
COFFEE DRINKING	no or rare	20	57,14	44	64,71	64	62,14
	low consumption	11	31,43	18	26,47	29	28,16
	high consumption	4	11,43	6	8,82	10	9,71
	SUMARY	35	100	68	100	103	100

Table 8 contains data that indicate that a high intake of coffee (several times a day) declare only 9.71% of students (including 11.43% of males and 8.82% of women). The highest percentage of respondents declare that do not drink coffee or drink it rarely (57.14% men and 64.71% women).

Table 9 State of students health behaviors in the incidence of smoking

TYPE OF HEALTH BEHAVIOUR	STAGE	MEN n= 35		WOMEN n=68		TOGETHER n=103	
		n	%	n	%	n	%
TOBACCO SMOKING	nonsmokimg	20	57,14	47	69,12	67	65,05
	occasional	8	22,86	15	22,06	23	22,33
	regular	7	20,00	6	8,82	13	12,62
	SUMARY	35	100	68	100	103	100

Data shown in Table 9 indicate that a fairly large group - 57.14% men and 69.12% of women do not smoke tobacco. Regularly smoking declare 20.0% of male students and only 8.82% of female.

Table 10 State of students health behaviors for time spent in front of the TV or computer

TYPE OF HEALTH BEHAVIOUR (ZZ)	STAGE ZZ	MEN n= 35		WOMEN n=61		TOGETHER n=96	
		n	%	n	%	n	%
Amount of time spent on TV watching or computer	lots of time	22	62,86	44	64,71	66	64,08
	little time	13	37,14	24	35,29	37	35,92
	SUMARY	35	100	68	100	103	100

Long time spent in front of a computer or TV indicates sedentary lifestyle. Table 10 shows that 64.08% of students spend more than 2 hours per day, so a lot of time spend in the front of computer or watching TV, and only 35.92% spend against these screens two hours or less.

Table 11. State of students health behaviors in nutrition

TYPE OF HEALTH BEHAVIOUR		STAGE	MEN n= 35		WOMEN n=68		TOGETHER n=103	
			n	%	n	%	n	%
NUTRITION	frequency of fruit and vegetables consumption	often	17	48,57	40	58,82	57	55,34
		rarely	18	51,43	28	41,18	46	44,66
	regularity of food consumption	regular	11	31,43	34	50,00	45	43,69
		irregular	24	68,57	34	50,00	58	56,31

The data in Table 11 indicate that frequent consumption of fruit and vegetable concerns 55.34% of students of tourism and recreation at the Kazimierz Wielki University in Bydgoszcz., while rarely consumption of fruit and vegetables declares 44.66% of the respondents. Frequent consumption of fruit and vegetables reported more women (58.82%) than men (48.57%).

Irregular eating concern up to 56.31% of students (including 68.57% of men and slightly less, because 50.0% of women), almost 44% of reports that eat meals regularly.

We also tried to answer the question concerning the state of students health behaviors with the use of pharmacological agents (Table 12).

Table 12 . State of students health behaviors with the use of pharmacological agents

TYPE OF HEALTH BEHAVIOUR		STAGE ZZ	MEN n= 35		WOMEN n=68		TOGETHER n=103	
			n	%	n	%	n	%
PHARMA-COLOGICAL MEASURES	the use of headache	at all	23	65,71	36	52,94	59	57,28
		rarely	12	34,29	23	33,82	35	33,98
		of ten	0	0	9	13,24	9	8,74
	the use of hypnotics	at all	35	100	65	95,59	100	97,09
		rarely	0	0	0	0,00	0	0
		of ten	0	0	3	4,41	3	2,91
	use of funds for medical	at all	25	71,43	39	57,35	64	62,14
		rarely	8	22,86	12	17,65	20	19,42
		often	2	5,71	17	25,00	19	18,45
	use of measures to improve the well-being	at all	25	71,43	45	66,18	70	67,96
		rarely	2	5,71	5	7,35	7	6,80
		of ten	8	22,86	18	26,47	26	25,24

An important element of lifestyle is the use of pharmacological agents. The data in Table 12 indicate that most of students (57,28%) don`t use head-ache painkillers (65,71% men and 52,94% women), but 1 of 3 respondents (33,98%) use them rarely (2 times in a week or less), only small part of respondents (8,74%) use them often (more than 2 times in a week). Those are only women (13,24%). The majority of students don`t use sleep-inducing drug (97,09%). The use – more than 2 times in a week declares 2,91%, only 3 women, and rarely none of the respondents use them.

The use of drug in medical purporse may indicate the health status of academic youth. Only 62,14% of tourism and recreation students don`t use them in therapeutical purposes. And 18,45% use them often, more than 2 times in a week, and 19,42% use them in medical purposes rarely.

Frequent use of drugs for better mood, in which vitamins and supplements are included declares 25,24% of respondents, and 22,86% of them are men and 26,47% are women, seldom use declares 6,80%, and about 68% of men don`t use them not at all.

Discussion

The aim of this study was to assess lifestyle, including physical activity and other health behaviors of students recreation and tourism, potential health promoters.

This work presents the status of various health behaviors of students, including several types of physical activity. The study's own data shows that over 65% of students characterized low level of daily physical activity. This means that the vast majority of students studding at tourism and recreation at the Kazimierz

Wielki University in Bydgoszcz most of their time per day spent passively, sitting or standing. It is almost 10% lower proportion than the one found in the studies of students of all courses conducted in Bydgoszcz University a few years ago (in 2004). It states that approximately 74% of students led sedentary lifestyles, as shown by their low level of daily physical activity (Kostencka, 2009). Slightly better results were obtained in studies of students of different Gdansk universities (Patok, 2001). It states show that more than 80,0% of men spend most of the day hours in a seated position.

The study shows that over 61% of the students take any physical activity (exercises) in their spare time, including even 82,86% of men and only 50,1% of women.

However, a higher proportion was observed (78,9%, including 76,9% men and 80,1% women) of surveyed earlier students of other courses of this university, who declared that they take any physical activity in leisure time (Kostencka, 2006). Perhaps the reason for this difference is the greater amount of compulsory physical exercise at the direction of recreation and tourism than in other directions.

Physical activity communication at high level (on foot or by bicycle over 10 km per week) has 21,36% of the respondents, this applies to 25,71% men and 19.12% women. In the case of students of other faculties the percentage was similar - 20,9% of respondents, including 20,7% men and 21% of women. The highest percentage of students of tourism and recreation at the Kazimierz Wielki University in Bydgoszcz– 64,08%, including 57,14% 67,65% men and women, go to school by car or public transportation. In the case of students of other faculties the percentage was slightly lower – 52,2%, including 60,5% men and 47,3% women (Kostencka, 2006).

The high level of total physical activity (over 16 hours) concerns 33,33% of the respondents, including 50,0% of men and less than half, because 23,73% of women. Over 15% of respondents told that it is no more than 4-16 hours a week. Activity up to 4 hours per week is characterized by a fairly large group – 51,61% of the respondents, while significantly more women (57,63%) than men (41,18%). This means that the majority of respondents are characterized by limited physical activity overall.

Taking regular physical activity is very important due to the maintenance of optimal physical fitness and normal body weight.

Regular exercise at the level of positive impact on health (at least 3 times a week for a minimum of 30 minutes) reported 33,3% of respondents (50,00% men and 23,73% women). In the case of students of other faculties like previously studied more than 60% of students did not take the physical activity, which may contribute to maintain or improve their health. The comparison of results of research on physical activity, however, is quite difficult due to different methodology of data collection. The results of regular physical activity may vary depending on the type of institution and field of study. The data from the Opole University students that physical activity lasting 30 minutes and raising heart rate to 130 beats per minute a few times a week, takes over 60,0% of students daily, but

they are students majoring in physiotherapy. Żiszka-Salamon (2004) states that the regular physical activity (at least 3 times a week) is declared by even higher percentage of surveyed students of specialties such as physical recreation Podhale State Higher Vocational School in Nowy Targ (66,0%). In the case of studies of university students from 23 countries, the highest percentage of physically active (6 times in the last 2 weeks) was observed in Central and Eastern Europe – 32,0% (Haase et al, 2004). A similar percentage of Croatian students at the University of Split (37,8%) take the sport or recreational activity at least 3 times a week (Andrijasevic et al, 2005). In those studies of the university students in south-western Sweden, a lower proportion of men (31.0%) was observed than in the studies of students in Bydgoszcz (von Bothmer, Fridlund, 2005). However, this physical activity concerns on the form of regular exercise 2-3 times a week. Such comparison can be relative, however, as international studies, Swedish and Croatian do not fully correspond to the AF classification adopted in our study. Most similar to proper regular physical activity (according to their classification) are tests on the first year students at the University of Washington in St. Louis (Racette et al, 2005). They represent regular exercise 3 to 5 times a week. And show much higher proportion of regular exercises among men (58,0%) than among Bydgoszcz surveyed students.

In research among students of tourism and recreation at the Kazimierz Wielki University in Bydgoszcz results showed that over 60% of respondents did not practiced regularly (low regular physical activity), including 41,18% men 63% women. This is important for the lifestyle, because the regular physical activity may also contribute to other health behaviors (Kostencka, 2007).

The condition of specific health behaviors of students is also worrying. The vast majority of men (almost 95%) consume a large amount of alcohol in a meeting (more than three glasses of vodka, wine, beer mugs). While the women (85%) declare a small amount of alcohol consumption (up to 3 cups). In our research, it was noted that only 10,29% of women and 0% of men do not drink alcohol. The largest group of women (69,12%) drink alcohol infrequently (once a week and less), while among men the highest proportion (68,57%) were those who drink often (several times a week and more often). This means that the vast majority of the young people, up 93,2% consume alcohol. Similar results (94,5%) were obtained in studies of students of other faculties of the university. Similarly high results were obtained by other researchers Polish (Patok, 2001) and foreign (Steptoe et al, 2002; Steptoe and Wardle, 2001). It is disturbing that as many as 68,57% of men drink alcohol frequently (several times a week or more often), which is a higher proportion than among the Swedish students (15,0%) who drink a lot and often (von Bothmer and Fridlund, 2005) and German students' daily alcohol consumption - 9,4% (Stock et al, 2001).

The results from those own research shows that students of tourism and recreation at the Kazimierz Wielki University in Bydgoszcz do not drink coffee or drink it rarely (57,14% men and 64,71% women). High consumption of coffee (several times a day) claimed only 9,71% of students (including 11,43% of males

and 8,82% of women). This is slightly less than the declared by the students of other faculties of universities and university Bydgoszcz Danzig (Patok, 2001).

Frequent consumption of fruit and vegetable concerns 55,34% of the students, whereas seldom consumption of fruit and vegetables declares 44,66% of the respondents. Frequent consumption of fruit and vegetables reported more women (58,82%) than men (48,57%). Similar situations may be observed among students of other Polish universities.

A further recommendation related to the health is regular food eating, at least three meals a day. From its own research, the results indicates that the recommendations are not obeyed by over 40,0% of the students. Irregular eating up 56,31% of students (including 68,57% of men and slightly less, because 50,0% of women), almost 44% in eats meals regularly. In other Polish universities, this percentage ranges from 5,0% to 90,0%, but among students of other faculties of the same university, and as in most universities the results are similar to the results obtained by students of tourism and recreation at the Kazimierz Wielki University in Bydgoszcz.

When considering antihealthy behavior it can be seen that a fairly large group - over 57% of men and almost 70% of women do not smoke tobacco. Regular tobacco smoking is declared by 20,0% of male students, and only 8,82% of female students. Among the students of other faculties the percentage was slightly higher (respectively 23,6% and 17,6%). The prevalence of smoking among the students in Bydgoszcz is close to the students of Gdansk, Krakow and Poznan, while smaller than in Lublin, Bialystok School of Physical Education and young people in Krakow and the results of the German students (Stock, 2001). While for other countries such as Sweden (von Bothmer and Fridlund, 2005), China (Xiangyang et al, 2003) or countries of Eastern and Western Europe (Steptoe and Wardle, 2001) is comparing unfavorably to the youth from Bydgoszcz, but the those differences are not great. In case of 20,000 surveyed students from 23 countries analysed by Steptoe'ai et al (2002) it was found that there is a lower percentage of smokers of Poles (26,0% men) than French (31,0%), Germans (37,0%), Greeks (44,0%), Italians (43,0%), Portugal (47,0%), Spain (36,0%) and Americans (32,0%).

Approximately 65,0% of the of tourism and recreation students spends a lot of time (over 2 hours a day) on the computer or watching television. It's only about 5% less than that found in studies of students of other faculties These data indicate that the students are sitting not only at the university, but also in their leisure time, which favors the development of civilization.

The health of students is also affected by the use of pharmacological agents. Frequent use of drugs to improve the mood, including vitamins and supplements is reported by every fourth respondents, and do not use them at all almost 68% of men. The vast majority of respondents do not use sleeping pills (over 97%), while approximately 60% do not use funds from a headache, but every third of respondents (33,98%) use it rarely (2 times a week and less). It is disturbing however, that over 13% of women use these drugs often (more than 2

times a week). Use of funds for medical reasons may also indicate the health status of students. Only about 62% of the students of tourism and recreation at the Kazimierz Wielki University in Bydgoszcz funds are not used for therapeutic purposes. As many as 18,45% use them frequently, or more than 2 times per week, including up to 25% of women and only 19,42% are used for medicinal purposes means rare. They are tested higher interest than those obtained in studies of students of other faculties Bydgoszcz.

Conclusion

1st Students of tourism and recreation (potential health promoters) are characterized by low levels of certain healthy behaviors, including limited physical activity, which suggests the need for intervention programs aimed at changing behavior antihealthy health promoting behaviors.

2nd Most women not taking the regular physical activity, which can contribute to improving their health, so especially women should be encouraged, and also allow them the conditions for regular physical activity, which is health-oriented.

3rd Use of pharmacological agents (analgesics, for therapeutic purposes) by the students, especially by women, may suggests not the best of health of them.

4th The study showed that there is a need for practical issues of health education to the degree program in tourism and recreation.

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Tai Chi as a fitness service for Wroclaw City inhabitants

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Keywords: fitness service, Tai Chi, recreation

Abstract

Modern civilization is an aging civilization. Everyday lifestyle put a lot of stress. People get tired easily and not so interested in sport participation. In order to have a high quality life a man have to take part in physical activity regularly. Many people are very mobile, but not necessarily means active. They move a lot, but there is not a moving that helps to live longer and get high quality of life. Worldwide trends show that people mostly intend to live in cities where is not enough green space for relax, walk or participate in physical activity. City stress such as noise, pollution and lack of space is well known in Wroclaw city. However, city inhabitants have an opportunity to participate in organized physical activity in fitness clubs. From the transformation times the recreation and fitness service is growing. Fitness service become more popular year by year. People start to think of their physical activity in not only pleasurable but also fitness dimension. They want to be more fit and get rid of everyday life stress. The Tai Chi fitness service offers body and mind programs which helps to maintain balance between body and mind. The paper shows Tai Chi fitness service in Wroclaw. The aim of the study was to show:

1.quantitative analysis of Tai Chi fitness service in Wroclaw city
2. qualitative analysis of Tai Chi as a fitness product
3. the participants' in Tai Chi fitness programs clients behavior in Wroclaw city
4. the factors that determine the participation in Tai Chi fitness service in Wroclaw.

There is four organizations that offer that offer Tai Chi fitness service in ten places in the city, mostly by a non-profit organizations where the participation fee is lower than at regular fitness clubs. The product is offered in different types of clients according to their skills: from beginner to advanced level. The lenght of Tai Chi fitness product is according to the participants' level from 75 to 120 minutes per session. Working personnel is a part of the success for participants and organizations. They teach participants new skills, make them active and also promote the activity. There are 22 people who work as Tai Chi instructors. They are mostly trained by international Tai Chi Association. Tai Chi fitness service participants take part systematically twice and once a week and willing to participate two and three times a week. Mostly they are 51-70 years old. There is

no difference between hours of participation and preferences. People take part in Tai Chi fitness program in late afternoon between 6 and 9 p.m. They pay for the service between 50-100 PLN per month and they are not tend to change it. Tai Chi as a fitness program has a big impact on body and mind balance but needs longer time in order to work. Young people are not so interested in Tai Chi and get rid of it after few sessions. In order to improve city inhabitants quality of life there is a need to promote this fitness program better.

Introduction

Modern civilization is an aging civilization. People live mostly in cities and experience an lifestyle with a lot of everyday stress. Modern civilization creates many products with a short-term life. In a quick time among such a big number of products people forgot that the human body needs relax, movement and physical activity.

Many people all over the world get tired easily, get involved in different civilization diseases and not so interested in sport participation. New age is a time of obesity, cardiovascular and other civilization diseases which have source in lack of body functioning.

In order to have a high quality life a man have to take part in physical activity regularly. Many people are very mobile, but not necessarily means active. They move a lot, but there is not a moving that helps to live longer and get high quality of life.

Worldwide trends show that people mostly intend to live in cities where is not enough green space for relax, walk or participate in physical activity. City stress such as noise, pollution and lack of space is well known in Wrocław city. However, city inhabitants have an opportunity to participate in physical activity in fitness or recreation clubs. From the transformation times the recreation and fitness service is growing in Poland. It become more popular year by year. People start to think of their physical activity in not only pleasurable but also fitness dimension. They want to be more fit and get rid of everyday life stress.

One of the newest fitness service trends is to offer *Body and Mind* products which helps to maintain balance between body and mind. One of these is Tai Chi or rather Tai Chi Chuan. This Chinese movement style is called *dance of the shadows* or *shadows gymnastics*. Adapted for healthy reasons becomes one of the most popular recreation activity. Classical Tai Chi style realize ancient Yin and Yang philosophy in every aspect of its practice (Wong, 1996). It emphasizes that every entity needs to coexist and interact with a counterpart of opposite nature in order to achieve balance and vitality. For every internal movement, a moving part of the body (yang) works against stationary part (yin) that provides support and power for the move. Torso is the location of junction between yin and yang. So, it initiates the movement from the internal body core (abdomen and back), not from the limbs, which are external parts of the body. It helps to mobilize the internal energy for health benefits. Tai Chi Chuan is also known as a *meditation in motion*, closely related to Chi Kung (Qi Gong). Both of then follow a "up and down"

approach, with initiating the state of meditation and chi flow. Tai Chi Chuan is an example of physical activity which are beneficial for people in mature age (Wolf and others, 2003). It could be a good activity for people in different health (Wang and others, 2004) and body condition (Jin, 1989). Tai Chi is a popular physical activity for people who live in cities in China. It doesn't need any special equipment or space. It is also not very difficult to learn. Regular participation could be beneficial for everybody. All of these can make Tai Chi a significant source of quality physical activity for city inhabitants. The aim of the study was to determine Tai Chi as a fitness product and its participants' behavior in order to improve the activity as a fitness product for people in aging society.

Aim of the study

The paper shows Tai Chi fitness service in Wroclaw. The aim of the study was to show:

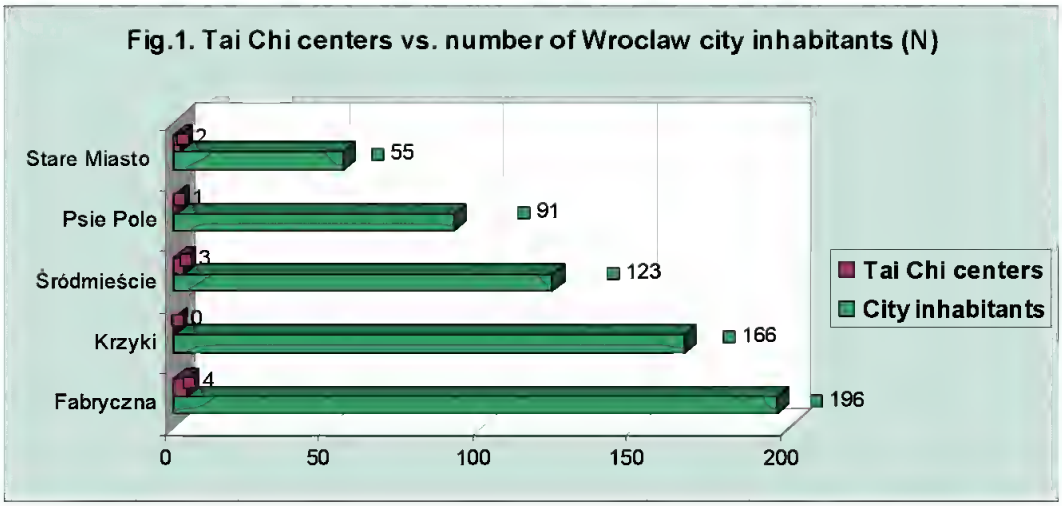
1.quantitative analysis of Tai Chi fitness service in Wroclaw city
2. qualitative analysis of Tai Chi as a fitness product
3. the participants' in Tai Chi fitness programs clients behavior in Wroclaw city
4. the factors that determine the participation in Tai Chi fitness service in Wroclaw

Material and Methods

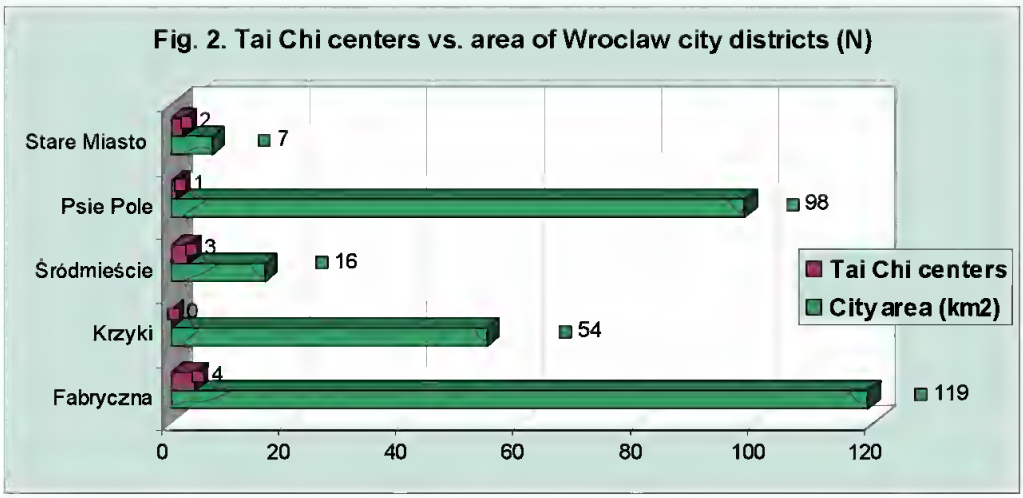
The aim of the study was quantitative and qualitative analysis of Tai Chi fitness service in Wroclaw city. First, the characteristics of Tai Chi fitness service and its participants is valid for planning and organizing the fitness product development for the city inhabitants. Secondly, the characteristics of typical Tai Chi consumer helps to fulfill their needs. Third, there are some factors which determined Tai Chi fitness service consumers' behavior. Knowing these is crucial for programming the product. Data collection, observation, interview and survey using questionnaire form were the main methods used.

Results

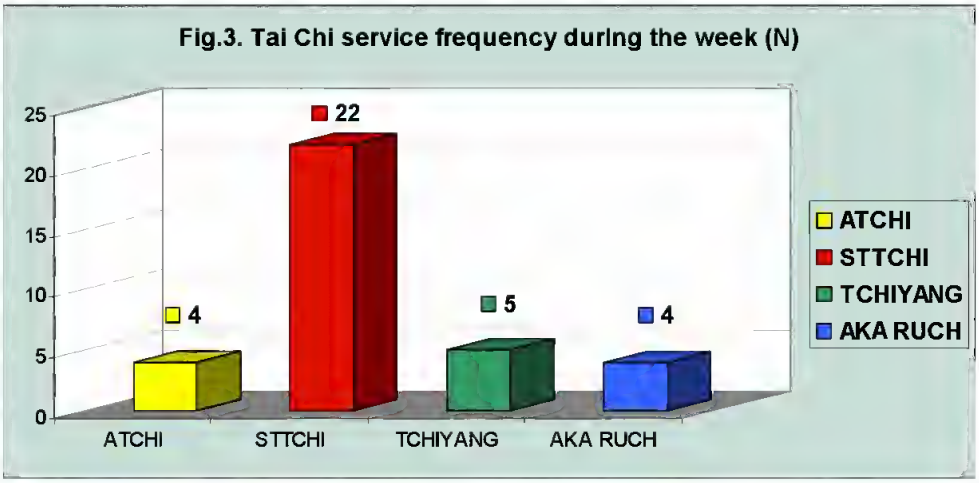
There are four organization that serve Tai Chi fitness service in the city. Three of them a private organization, one of them is a non-profit organizations where the participation fee is lower than at regular fitness centers. Those four organizations serve Tai Chi fitness service in 10 centers in Wroclaw city divided in five city districts (Fig.1.). There is no Tai Chi centers at all in one city district (Krzyki), where live close to 166 thousands inhabitants. The number of possibilities to take part in Tai Chi exercises in the city is very low comparing to the number of people who live in the city. The ratio of number of Tai Chi centers to Wrocław city inhabitants is very low (1,58%).



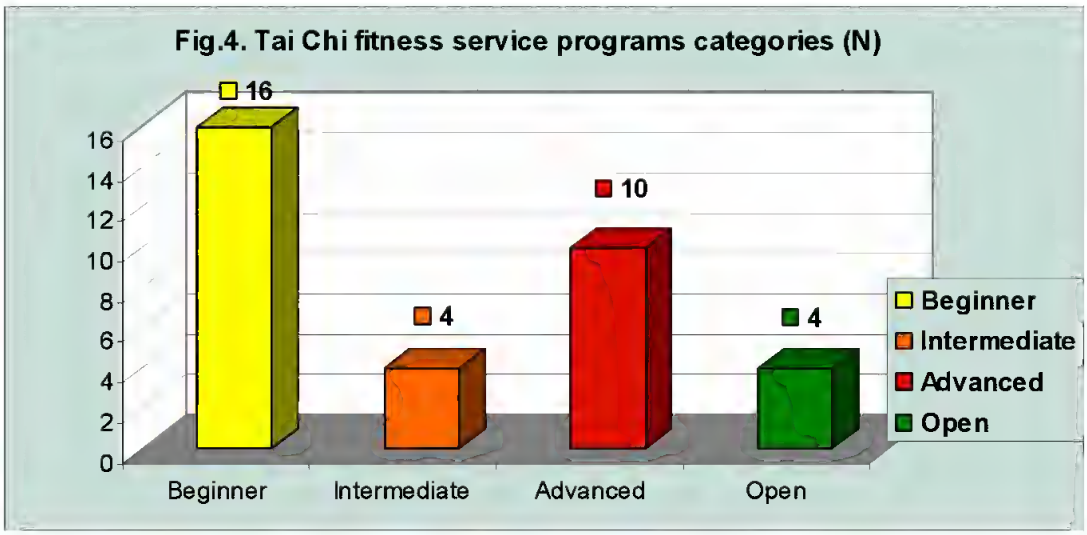
The ratio of number of Tai Chi center to the city area is 3,4%. It shows that there is a possibility to open more Tai Chi centers in order to develop this activity as a fitness service in the city (Fig.2.).



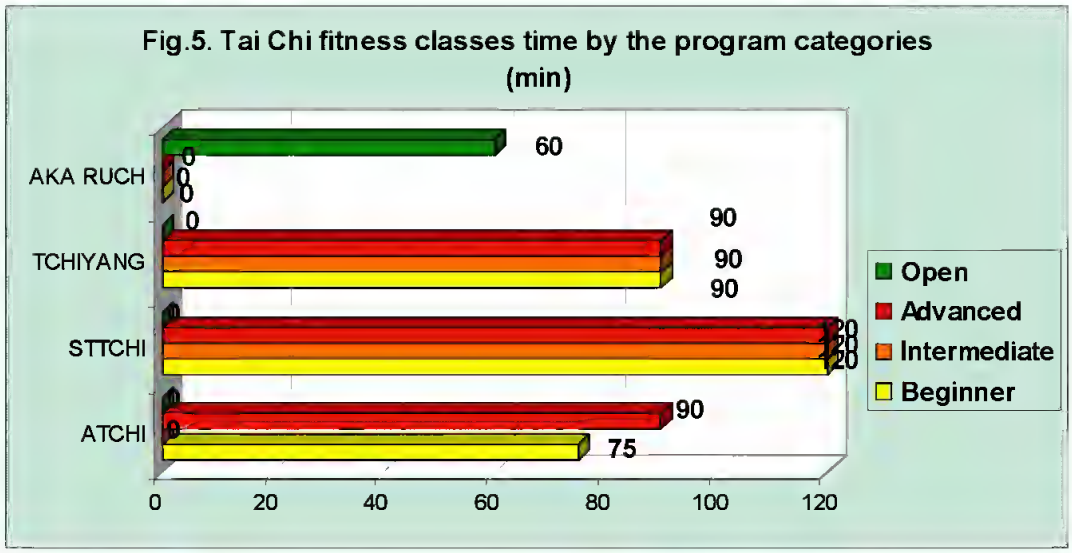
From four organization that serves Tai Chi as a fitness product a non-profit organization serves the biggest number of Tai Chi classes (22) during the week. Others serve just less than 5 classes per week (Fig.3.). The number of Tai Chi classes to attend in whole Wroclaw city is very small.



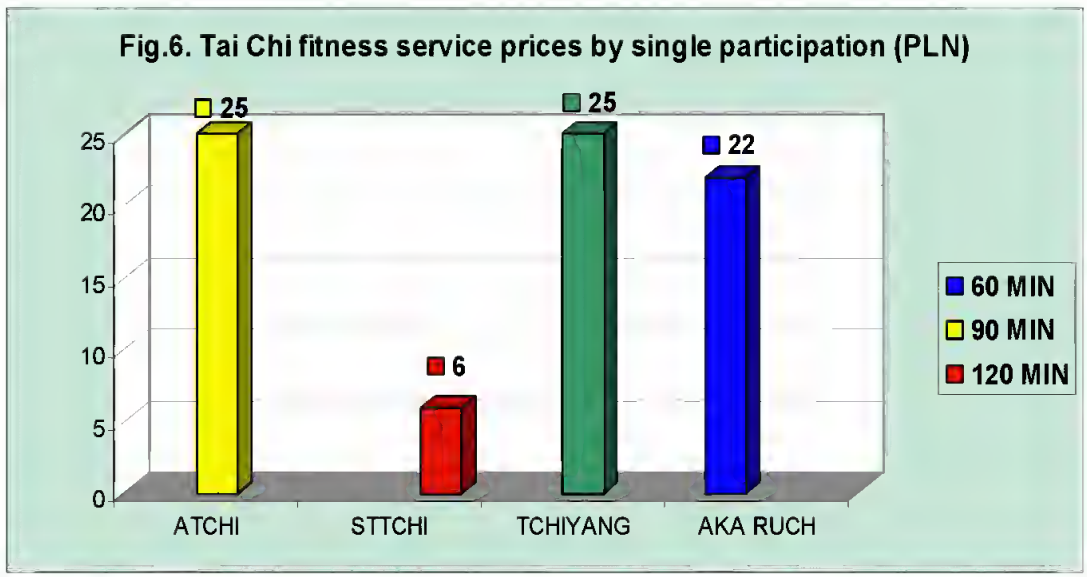
Tai Chi classes as a fitness product is offered in different types according to participations' skills. There are three main categories of Tai Chi classes: for beginners, intermediate, and advanced participants. At least there is also an open category for everybody, called open. There are 16 classes Tai Chi for beginners, 4 classes for intermediate, 10 for advanced and 4 open classes offered during every week in the city (Fig.4.)



The length of Tai Chi classes, according to the participants' level is from 75 to 120 minutes per session (Fig.5.).

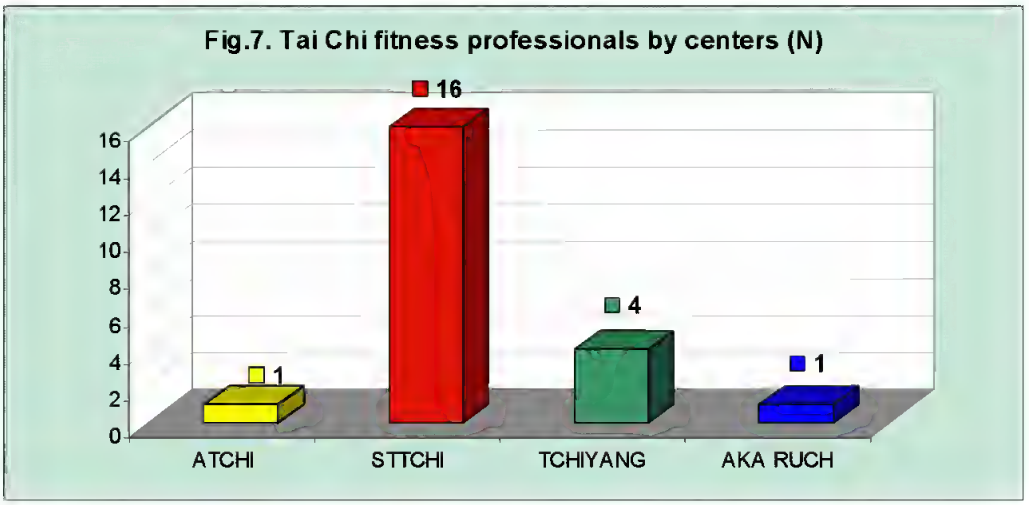


Tai Chi as a fitness service create different prices. There is a basic price in Tai Chi private centers that is about 22-25 PLN per session. The non-profit Tai Chi organization offers significantly lower cost of participation. There is about 6 PLN per session. In this case payment should be done for three months in advance(Fig.6.).

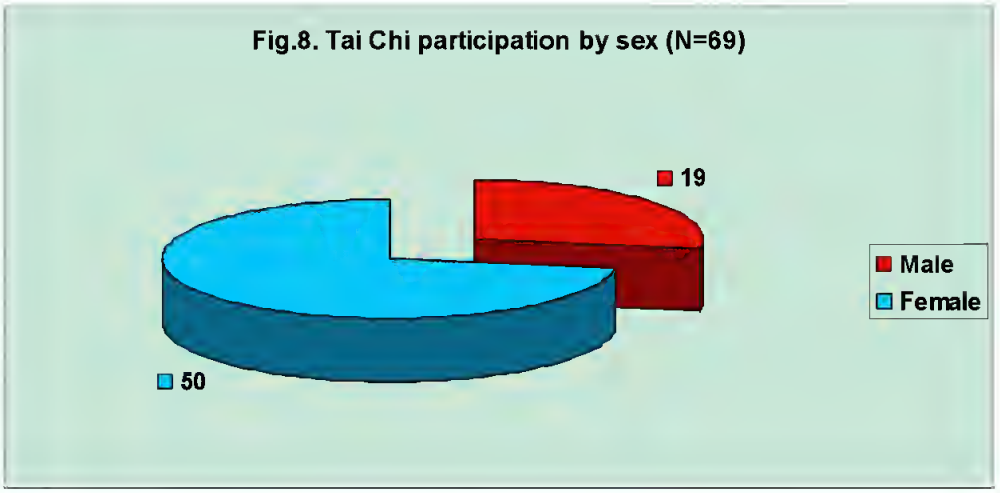


Working personnel is a part of the success for participants and organizations. They teach participants new skills, make them active and also

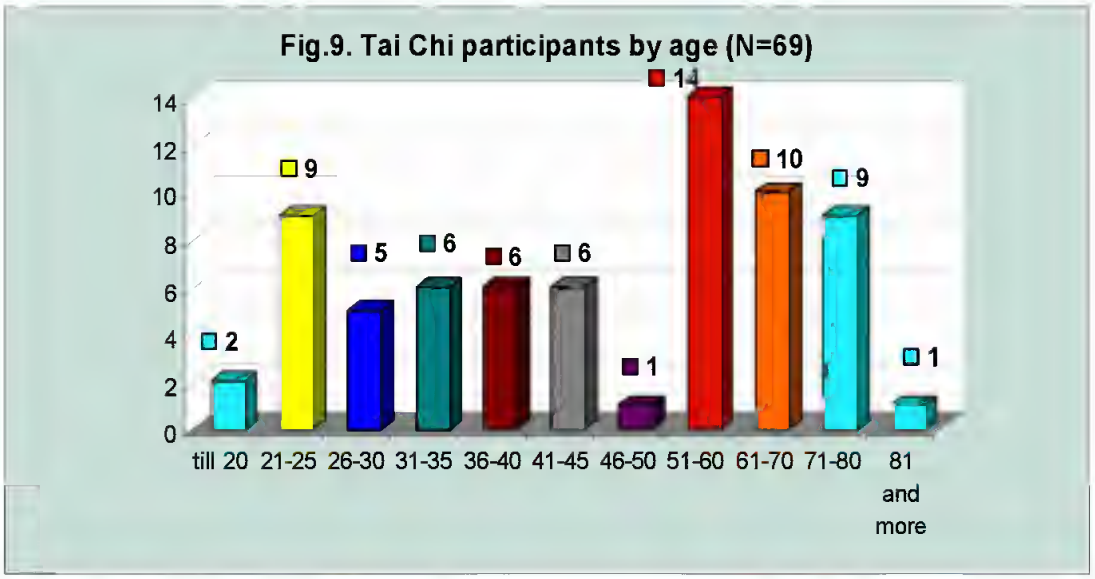
promote physical activity. There are 22 people who work as Tai Chi instructors. They are mostly trained by international Tai Chi Association (Fig.7.).



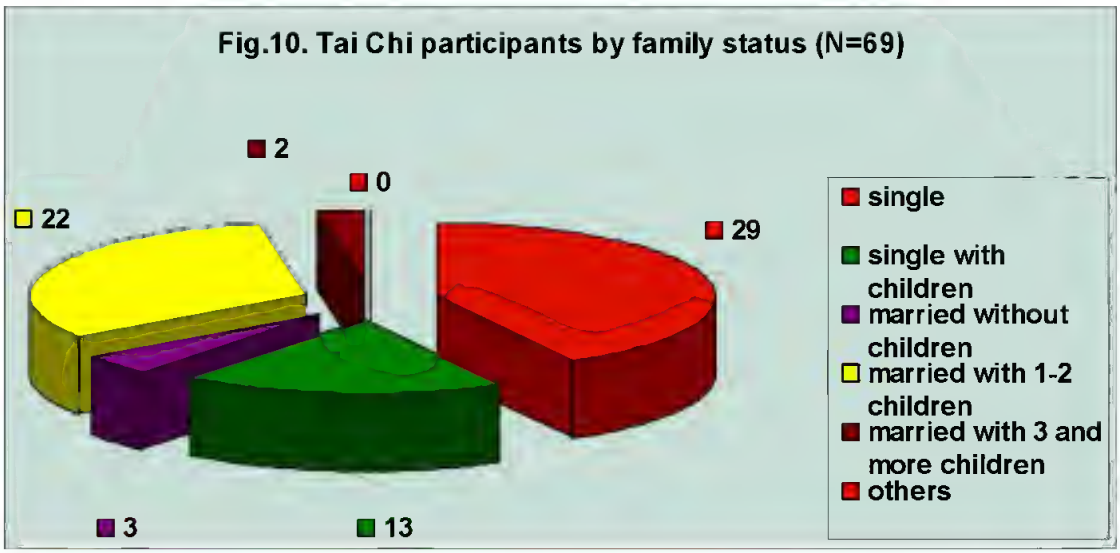
According to the study, Tai Chi fitness service participant in Wroclaw city is mostly a woman (50) than a man (19) (Fig.8.)



The typical Tai Chi fitness service participant is usually a mature woman in her 50-ties, 60-ties and 70-ties. However, the same number of Tai Chi participants in Wroclaw city are people in their 70-ties and 20-ties. (Fig.9.)

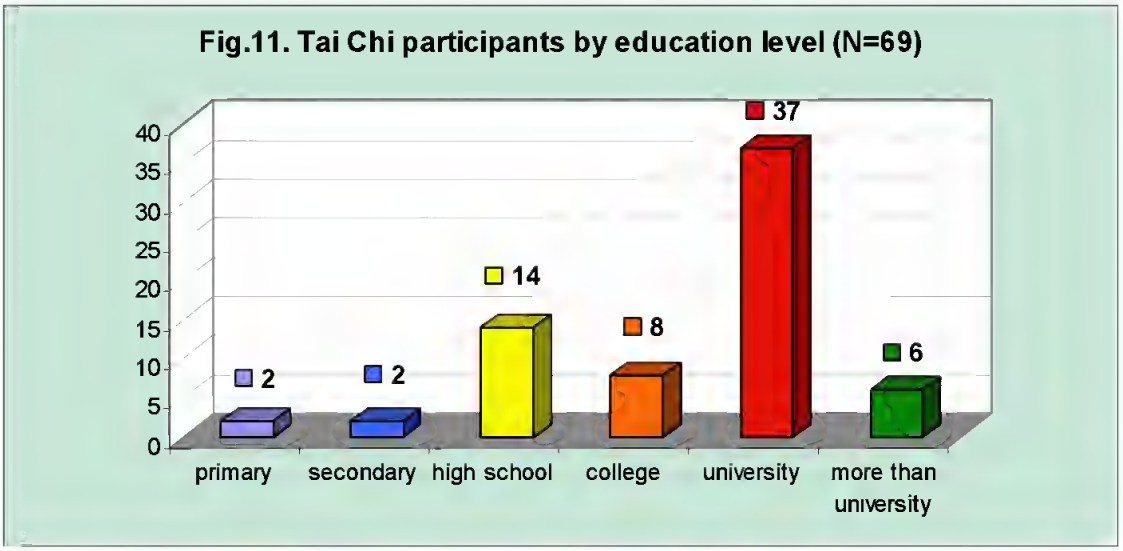


The major group of people – close to half a group that attend Tai Chi classes are singles (29 people) and after that married with one to two children (22 people). However, there is also a group of participants who are singles with children (13 people). Married people without children have a small representation among Tai Chi practitioners. (Fig.10).

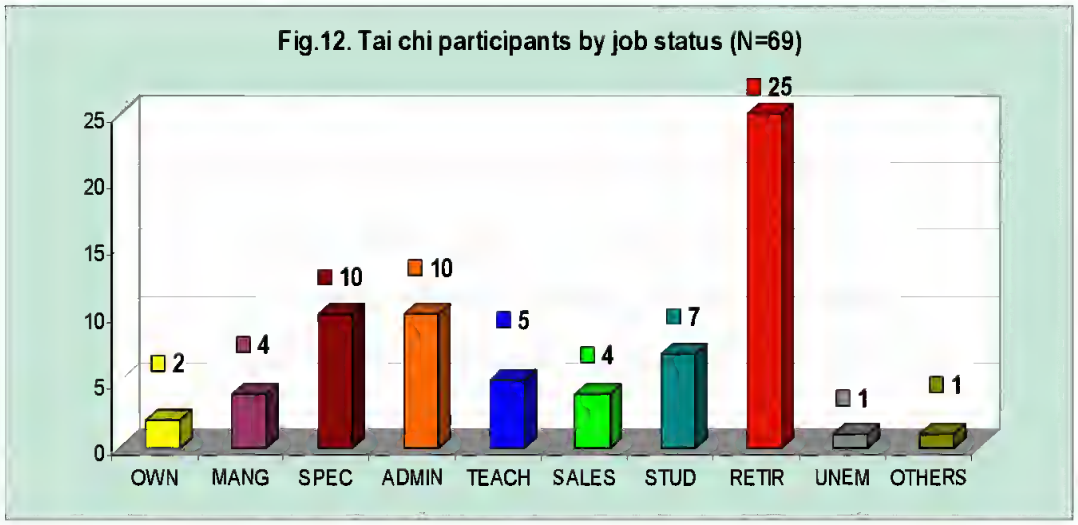


Typical Tai Chi participant from the survey is well-educated person. Majority of them have university education (37 people). About 1/8 of Tai Chi class participants finished high school (14 people). Tai Chi clients with college education are similar to the number of people who have more than university

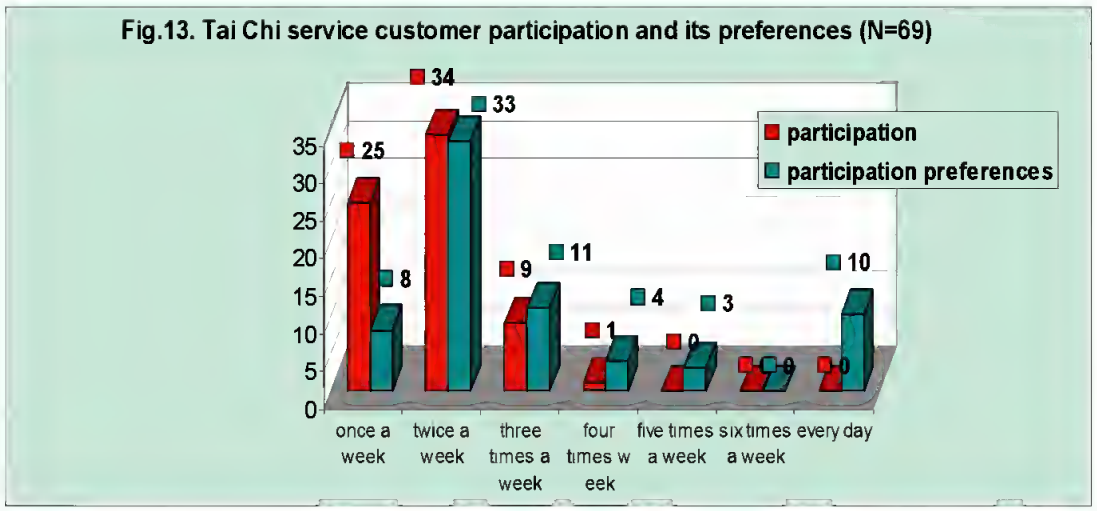
education. Tai Chi consumers who have primary (2 participants) or secondary (2 participants) school make significant small group (Fig.11.)



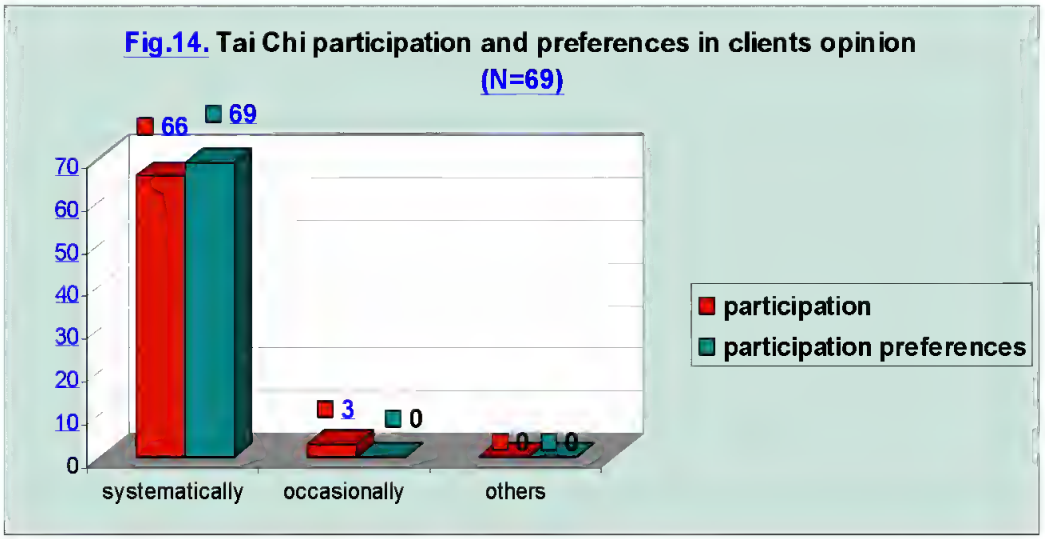
Tai Chi participants from the study are mostly retire (25 people). This fact play a significant role for fitness service programming process in the city. The smaller group of participants are working. They are involved in administration jobs mostly (10 people). There are also some students (7 people), teachers (5 people). Salesman and managers are a minor group of Tai Chi classes participants (Fig.13.). Tai Chi is popular program among mature people and it should be strong promote among them. Aging society needs physical activity in order to have a quality life that they deserve. On the other hand there is a good source of many civilization illness prevention. The cost of its implementing is not so high. Tai Chi could play an important role in mature people physical activity, especially among in city population.



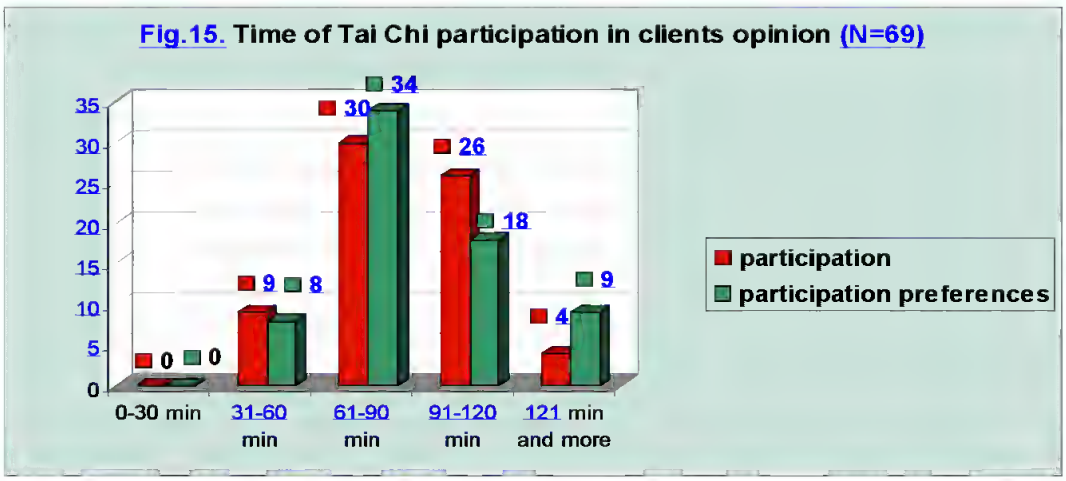
People participate in Tai Chi classes usually twice a week (half a group - 34 people) or once a week (25 people). Minority of them attend classes three times a week. The preferences analysis showed that people are interested to participate twice a week. However there is a small group of clients who are interested to participate three times a week (11 people), every day (10 people) and once a week (8 people). Nobody attends Tai Chi classes and willing to do it six times a week. There is a tendency to participate every day of the week. (Fig.13).



Tai Chi as a fitness program needs quite a bit of time to achieve results. People who participate in classes are conscious about it. They participate in classes systematically. The preferences in this case are the same (Fig.14.).

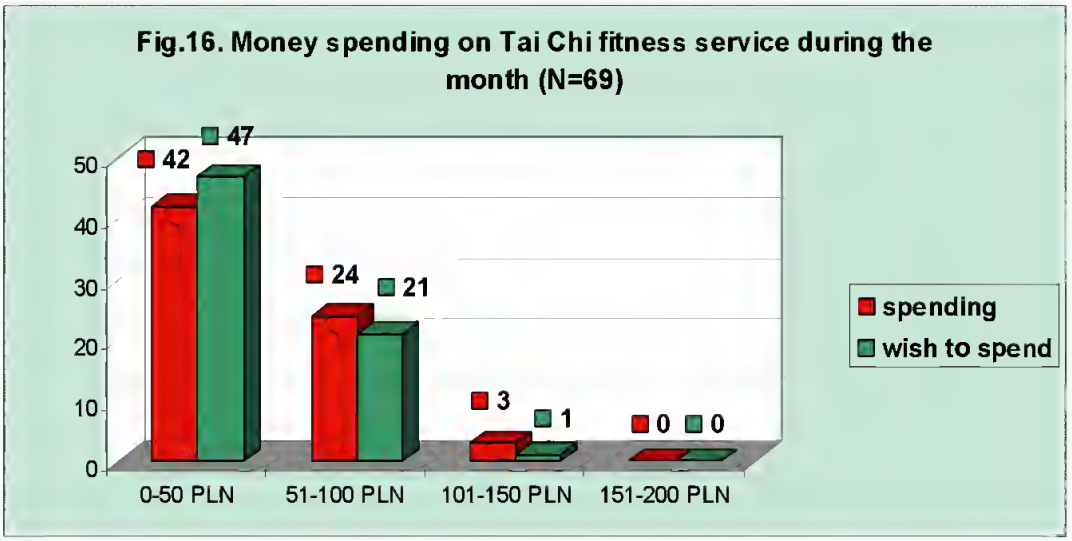


The length of Tai Chi classes is one of the fact that is responsible for fitness improvement and also pleasure of attending classes. Tai Chi class according to the survey needs to spend 61-90 minutes of time (for close to half a group – 30 people) and 91-120 minutes (for similar 26 people). Analysis of the preferences showed that bigger group of participants (34 people) would like to spend one to one and half an hour at class. Less number of people who attend classes 91-120 minutes are willing to do it (18 people). Less than 1/6 of the clients would like to spend from 31-60 minutes. Also few of them spend more than 2 hours but there is a small increase of number of people who are interested in it. (Fig.15).

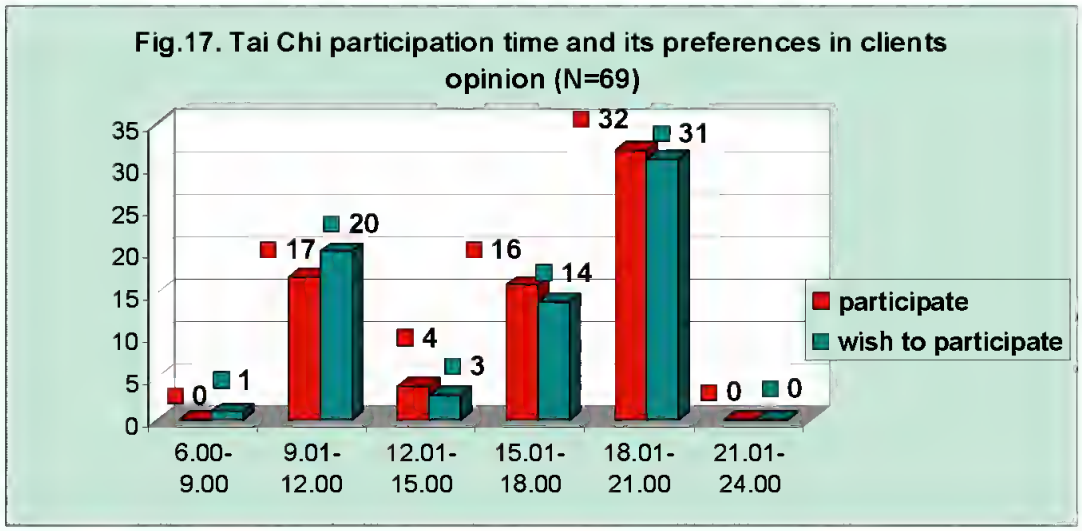


Nowadays in Poland Tai Chi is a part of fitness service. It means that participants have to pay in order to participate regularly. The analysis of monthly

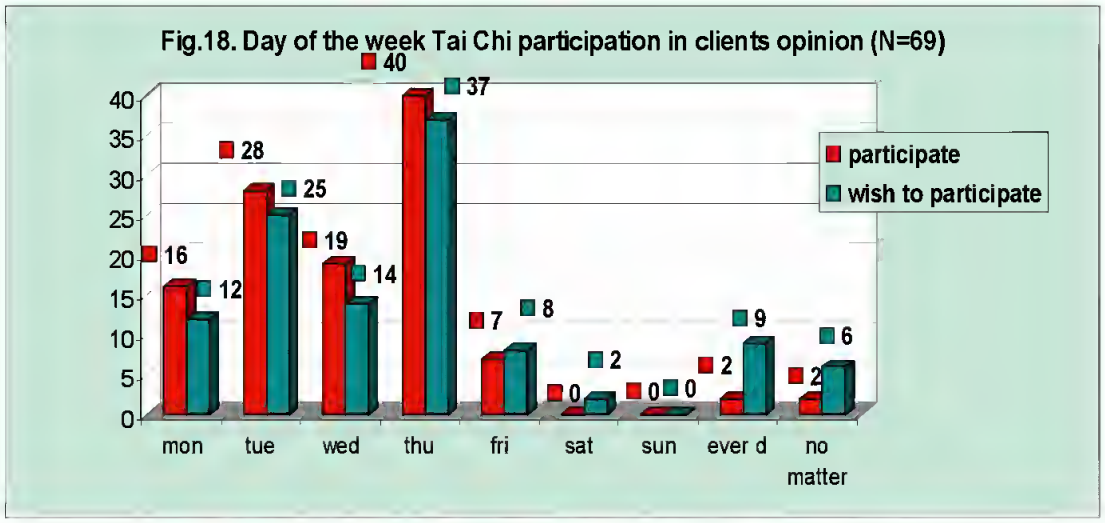
participation cost show that 2/5 of the clients mostly spend 0-50 PLN and ¼ of them 51-100 PLN. Nobody spend more than 151 PLN, and very small number of people spend 101-150 PLN. The preferred cost at this matter is quite similar, however, less people are willing to pay 51-100 PLN and more pay less than 50 PLN. (Fig.16.)



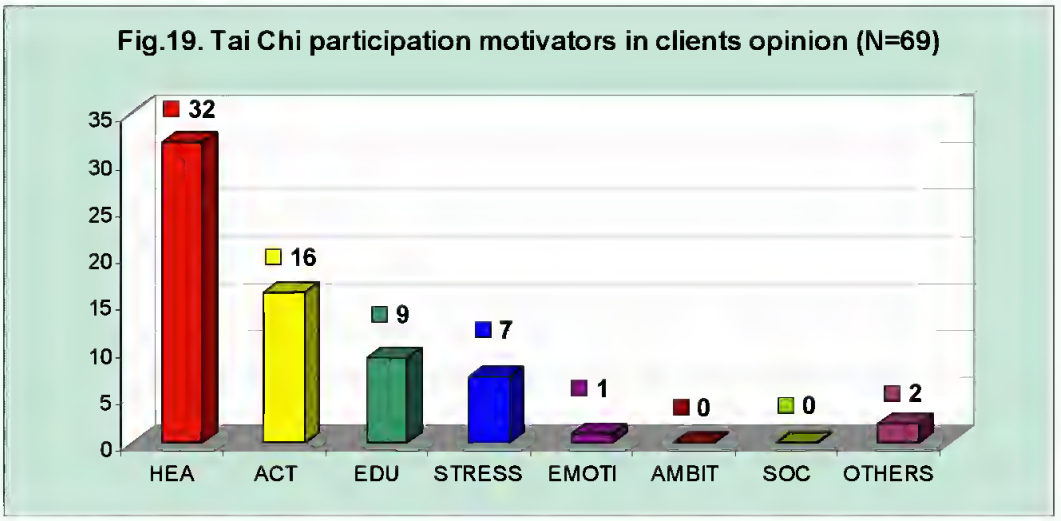
Tai Chi fitness participants mostly attend classes between 6 p.m. and 9 p.m. Close to one 1/5 of the clients participate between 9 a.m. and 12 a.m. There is also a group of people who take part in Tai Chi classes between 3 p.m. and 6 p.m. There are similar to their preferences in general. Most of participants are interested in classes in late afternoon (3 and 6 p.m.). There is a number of clients who would like to participate in the morning (from 9 to 12 a.m.). A little bit less participants are interested in classes from 3 p.m. and 6 p.m. People are not interested in Tai Chi classes in late evening (after 9 p.m.) and between 12 a.m. and 3. p.m. (Fig.12.)



The best day of Tai Chi participation during the week are Thursday and Tuesday. A little bit less Wednesday and Monday. Fridays, Saturdays and Sundays are not good at all. The preferences are close to them. Thursday, Tuesday and after that Wednesday and Monday are good for practice. Weekend is reserved not for Tai Chi classes (Fig.18.)



Health is the main factor that determine Tai Chi fitness service participation in Wroclaw city. Keep up with a good health and fitness or improving them is very important. There are also other factors which influence Tai Chi clients' behavior. There is also influence of activity and education needs. Stress relief is also a factor that determine participation in Tai Chi fitness service. Ambition, social and emotional needs are not playing any role among determining factors.(Fig.19.)



Discussion

In order to promote Tai Chi fitness service is important to take under consideration seasonality of the product. Tai chi classes could be provide also at green areas, in city parks. However, the number of regular participants could be various, because of the atmosphere and weather condition. The study does not included these possibility, because in Wroclaw city this form is offered occasionally and the classes are not able every time.

Conclusion

Tai Chi as a fitness activity in the city could be an alternative idea. In order to improve city inhabitants quality of life there is a need to promote this fitness program better.

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Swimming as a form of physical activity promoted among people after spinal cord injury, participating in camps organized by Foundation for Active Rehabilitation

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Keywords: Paraplegia, tetraplegia, swimming, rehabilitation

Abstract

At the time of rapid development of technology, industry and motorization, the number of accidents which result in spine injuries along with spinal cord damage has increased. Functioning of a person after injuring their spinal cord depends on the scope of damage and medical and rehabilitating help given both immediately after the injury and later on. Unfortunately, it is not always that a person with spinal cord injury that leaves a hospital is independent.

Swimming is one of the most effective sport discipline promoted by Active Rehabilitation Foundation. For people with spinal cord damage, water is an environment which positively affects their physical activity and mental comfort. The aim of exercising in water is to learn and encourage the participants to swim as a way of excellent form of recreation, spending spare time, doing sport and as a one of the best forms of therapeutic improvement. The assumption of swimming training sessions on camps organized by Active Rehabilitation Foundation is to deliver the participants with basic theoretical knowledge and practical skills, which may allow to use swimming pools and beaches open for general use in an independent and safe way.

The aim of the work is to assess how ready the people after spinal cord injury are to take up swimming in a rehabilitating, tourist-recreational and sports aspect.

The research was conducted among 30 participants of camps organized by Active Rehabilitation Foundation in the Centre of Olympic Training Preparations in Spala and in the Centre of Sport and Recreation in Zamość. There were 4 women and 26 men taking part in a research. The participants took part in an examination of muscle strength with the help of a unified scale of spinal cord damage classification ASIA (American Spinal Injury Association). Participants

were also observed if they can do alone the following activities: getting dressed and taking off clothes, using the toilet and the shower, changing seats and putting on urological supply, getting in and out of water, getting accustomed with water, proper breathing, lying on one's back and stomach, changing positions and maintaining vertical position. Next, the level of participants' swimming skills during the training sessions were assessed in a scale from 1 to 10.

The results of the present research confirm that swimming activities positively influence the development of self-reliance of the participants while performing the activities mentioned above.

Introduction

At the time of rapid development of technology, industry and motorization, the number of accidents which result in spine injuries along with spinal cord damage has increased. It is estimated that each year brings from 25 to 30 injured people out of a million in a population (Kiwerski 2005). In Poland, it is also a problem to give an exact number of spinal cord injuries. The number is assumed to be about 1600-1800 injured people every year (Furmaniuk, Cywińska-Wasilewska 2008). It should be pointed out that there are more reasons of spine injuries with spinal cord damage and their etiology is closely related to the age of the group examined, work performed, place of residence and very often with common sense. Organizing the topic it was assumed that the most common classification of reasons of spinal cord injuries is a division into the injuries resulting from road accidents and from falls from altitudes (Kiwerski 2001). The most severe spinal cord injuries come more and more frequently from the accidents during performing extreme sports (Tasiemski 2001).

Functioning of a person after injuring their spinal cord depends on the scope of damage and medical and rehabilitating help given both immediately after the injury and later on (Kwolek 2003). In the beginning, the help is provided in a neurosurgical ward, then in a rehabilitating one. The aim of the rehabilitation is to adapt people, who experienced loss of health and work disablement because of inborn or acquired developmental defects, to social life (Okoń 1992). Rehabilitation is also considered as restoring fitness and enabling to self-reliant living in the society (ESR 1986), as well as comprehensive action of a nation and society aiming at maintenance or restoration normal social roles (Kabsch 1998). Unfortunately, it is not always that a person with spinal cord injury that leaves a hospital is independent. It is often due to the scope of damage, incomplete rehabilitation activity and incompetent attitude of the staff to the problems. Ineffective treatment results in dependence of a disabled person on relatives, which negatively influences further rehabilitation (K, L-D, P-J 2004).

Assumption and aim of the work

Rehabilitating significance of motor activity and sport in improving disabled people is known since long ago (Tasiemski 1999). Systematical performing of

physical exercises and sport allows to maintain fitness obtained during clinical treatment on a high level, preventing from compensation processes extinction and complications resulting from inactivity. Sport performed by disabled people forms and maintains fitness, which enables to obtaining independence in life, performing working and social career. It is also an element of a comprehensive rehabilitation (Dziedzic 1996). Other authors also share the opinion that sport performed by disabled people serves their health as long as obtaining a sport result is followed by greater independence in life and improves the contact with social environment (K, L-K 1999). The authors also pay attention to improving the quality of living of disabled sportsmen.

Sport may be a vital factor on the way to create personality type which favours caring of health (K, L-K 1999). Motor activity creates beneficial educational situation not only for disabled people to diminish their disability but also to transform values and at the same time to increase chances for their complete participation in life (Maszczak 1999).

Motor activity influences the integration of a disabled person with the social environment (N, G 1997, K, L-K 1999). Physical activity of disabled people should be considered taking into account the division of sport into the one "for everybody" and a "highly-qualified" one. "Sport for everybody", meaning for the young, the strong and the healthy as well as for the elder, the weaker and the disabled, is widely understood as a recreation activity without any limits or barriers. Physical activity influences the integration of healthy people with disabled ones (K-J, K 1999). Mutual meetings are of a deep humane dimension, they teach respect for dissimilarity and tolerance towards weakness and imperfection. On the other hand, participation in a professional sport activity beneficially influences psychological side, because it gives the opportunity to self-realization, to test oneself, to overcome one's own weaknesses, it also gives joy of life and is a getaway from everyday issues.

Active Rehabilitation Foundation (FAR) is a non-governmental organization and was established in 1988 modeling itself on a Swedish organization of active rehabilitation Rekryteringsgruppen for Aktive Rehabilitering. Its main aim is to restore self-reliance and social activity in people after spinal cord injury by performing sports. Nowadays, Active Rehabilitation Groups function as local structures, whereas FAR works as an organization of nationwide range. A characteristic feature of active rehabilitation movement is the fact that it uses the potential of people after spinal cord injuries. Therefore, the majority of FAR instructors are the people on wheelchairs, both with paraplegia and tetraplegia (Kosmol 2008).

Swimming is one of the most effective sport discipline promoted by Active Rehabilitation Foundation. For people with spinal cord damage, water is an environment which positively affects their physical activity and mental comfort. It is because, taking into account the properties of water, people after spinal cord injury have greater movement ability than in a natural environment (FAR 2008).

The aim of exercising in water is to learn and encourage the participants to swim as a way of excellent form of recreation, spending spare time, doing sport and as a one of the best forms of therapeutic improvement. Additional benefits of attending swimming classes by people with spinal cord injury are: overcoming the fear of water, the feeling of being ashamed of one's body and accepting oneself after an accident as well as learning self-service. The assumption of swimming training sessions on camps organized by FAR is to deliver the participants with basic theoretical knowledge and practical skills, which may allow to use swimming pools and beaches open for general use in an independent and safe way.

The aim of the work is to assess how ready the people after spinal cord injury are to take up swimming in a rehabilitating, tourist-recreational and sports aspect. Another aim is to verify presented theses by answering research questions:

1. To what extent do the swimming classes led on FAR camps influence the development of movement abilities of people after spinal cord injury?
2. Do the classes led on FAR camps prepare people after spinal cord injury to independent performing activities connected with using a swimming pool?
3. Can the participants of FAR camps swim selected swimming strokes after the camp period?

Material and method

The research was conducted among 30 participants of camps organized by Active Rehabilitation Foundation in the Centre of Olympic Training Preparations in Spala and in the Centre of Sport and Recreation in Zamość. There were 4 women and 26 men taking part in a research. The whole research group was divided because of the level of spinal cord damage. 21 people with paraplegia (including 4 women and 17 men) and 9 people with tetraplegia (9 men) took part in the research.

After being given the detailed information concerning the aims and range of the research, each person participating in the research expressed their consent on taking part in the research.

The age of the participants ranged from 21 to 56. The average age in the whole group was 36. The average age in the paraplegia group was 39 and the average age in the tetraplegia group was 29.

The participants took part in an examination of muscle strength with the help of a unified scale of spinal cord damage classification ASIA (American Spinal Injury Association). The scale precisely described the muscle strength and sense, which might have weakened after spinal cord injury. Examining moving functions, the muscle strength was assessed in a scale from "0" to "5". The maximum value to obtain was 100 points. The higher values were obtained during the research, the bigger muscle strength was. After examining the four limbs, the researchers summed the obtained point values for particular muscles. The result determined the neurological movement state of a person with spinal cord injury.

Training sessions on FAR camps are not only the ways of forming swimming skills but they are also the way of learning to use public swimming

places independently. These skills include: taking off and putting on clothes, putting on urological supply, getting in and out of a swimming pool and using the shower. All these activities are performed in purpose-made difficult conditions, which, after mastering the necessary skills, makes a disabled person feel really satisfied and content of themselves.

The whole training session consists of four parts:

1. Preparation for the classes.
2. Warm-up.
3. Learning the technique of getting in and out of water.
4. Training in water.

A proper part of a training session is learning swimming strokes. It takes place in an appropriate order, which is from the simplest one to the most difficult. It also depends on the fitness of the participants and on their abilities to acquire new skills. Considering the paralysis of lower limbs of people participating in the camps, FAR defined two new swimming strokes: "eagle" and "stork". Other strokes learnt by the participants are symmetric backstroke, asymmetric backstroke, breaststroke, freestyle and butterfly.

The second stage of the research took place during the activities in the swimming pool. It took place according to the swimming classes schedule valid on every camp organized by FAR. Participants were observed if they can do alone the following activities: getting dressed and taking off clothes, using the toilet and the shower, changing seats and putting on urological supply, getting in and out of water, getting accustomed with water, proper breathing, lying on one's back and stomach, changing positions and maintaining vertical position. Next, the level of participants' swimming skills during the training sessions were assessed in a scale from 1 to 10. Swimming strokes which were assessed included: "eagle", "stork", symmetric backstroke, crawl B, breaststroke, crawl A, dolphin and swimming underwater. All the observation results were noted in a swimming classes participant's form.

The research was conducted in the beginning of the period in a swimming pool and were repeated in the end of the camp. To compile the results of the research, the following statistical methods were used: the average change and standard deviation. To demonstrate statistical significance of examined features, a statistical test t-Student was used.

Moreover, correlation between ASIA scale and the level of changes related to the skills of swimming different swimming techniques was checked. Pearson correlation was used in this case, which is a linear dependence of random variables.

Test results

The results were compiled on the basis of swimming classes cards in the swimming pool conducted by swimming instructors on the FAR camp and also on the basis of the ASIA scale. The first part presents the results obtained during the observation of the group of people with paraplegia during swimming classes. Self-reliance in the swimming pool and the level of mastery of swimming skills were

taken into account. The second part shows the results obtained after examination of the group of people with tetraplegia.

The results compiled from FAR camp participants' cards in the group of people with paraplegia. It is assumed that "0" in the chart means the absence of autonomy in performing selected activity and "1" means self-reliance in its implementation. The feature studied was the ability to dress and undress independently before and after the camp.

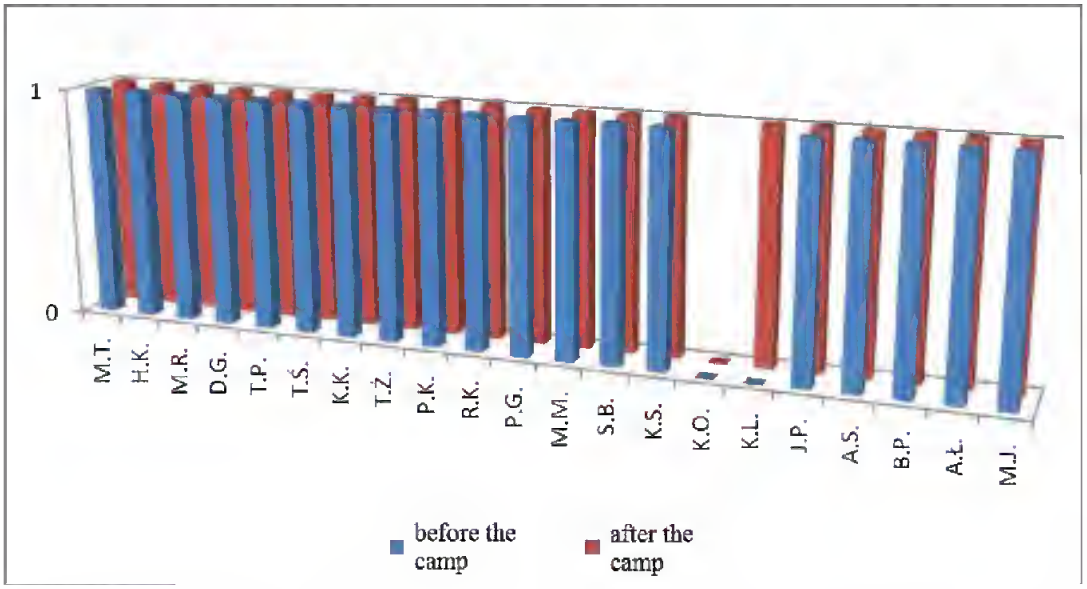

Fig.1. The ability to undress on one's own before and after the camp. T=1.024695 t=2.086 T <t

On the basis of statistical calculations performed using the Student's t- test it was claimed that the change in the ability to undress on one's own in that group is statistically irrelevant. It results from the fact that the majority of people with paraplegia participating in the camp were able to perform this activity even before the camp. Among the 21 people surveyed, 19 participants were able to undress by themselves before the camp, 1 participant acquired this ability in the swimming classes, and one participant did not master this activity during the entire camp.

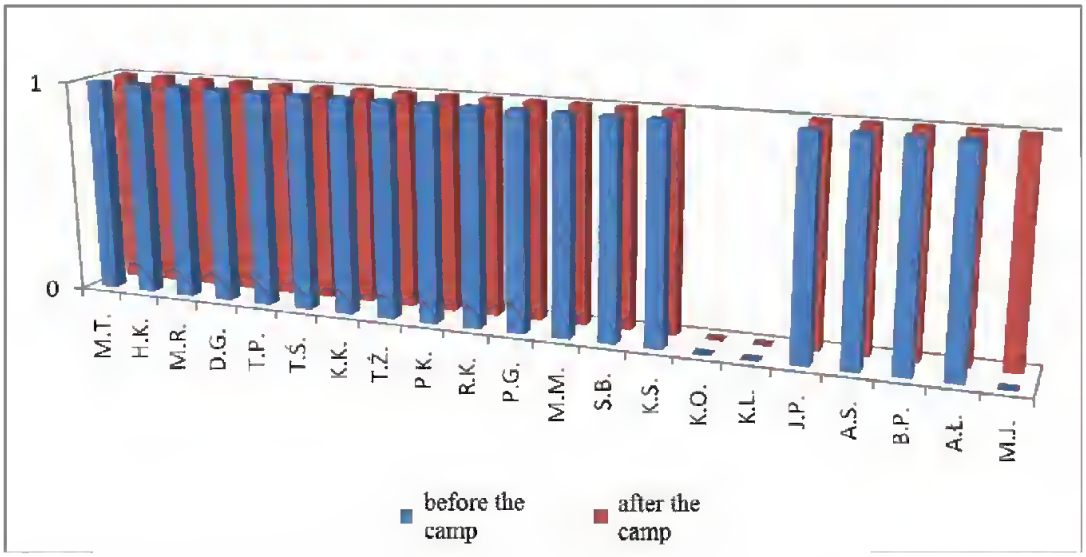

Fig. 2. The ability to dress on one's own before and after the camp.
T=1.024695 t=2.086 T <t

As in the previous case dealing with the group of people with paraplegia, Student's t-test proved that a change in self-dressing skills in this group is statistically insignificant. The majority of people with paraplegia (18 participants) were able to independently perform this activity before the camp. Out of the remaining 3 people, 1 person acquired this ability in the swimming pool, and 2 people did not learn to dress by themselves.

Fig.3 presents the results of the next feature studied in the group of people with paraplegia: the ability to use the toilet independently.

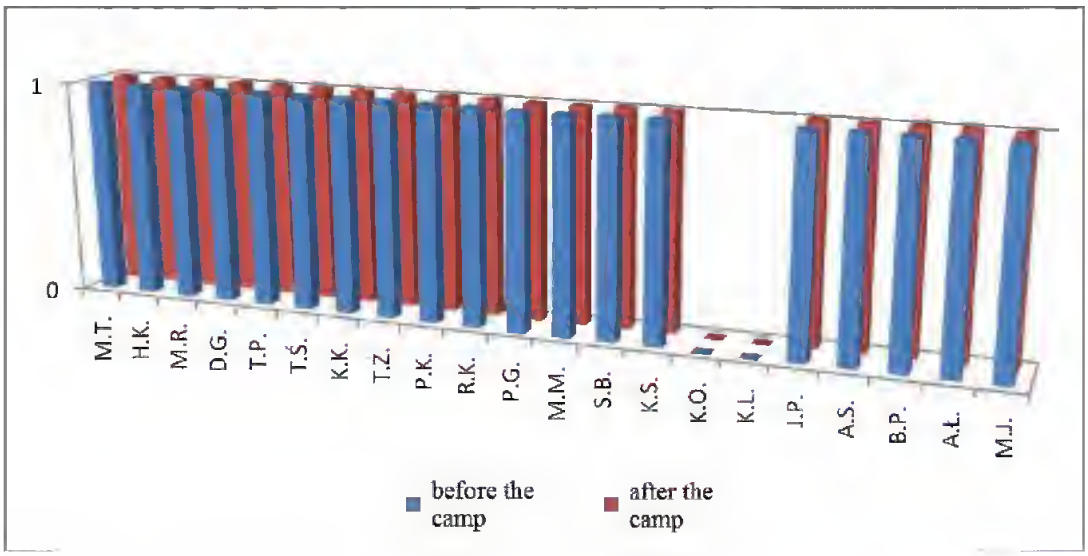

Fig. 3. The ability to use the toilet independently before and after the camp.

In this case, the statistical test could not be used, because no changes have occurred in the ability to use the toilet independently in the group of people with paraplegia. 19 participants from this group were able to perform this activity before the camp, whereas two people did not learn to use the toilet independently during the classes in the swimming pool.

Another feature studied was the ability to change a seat independently in the locker room at the time of preparation to enter the swimming pool.

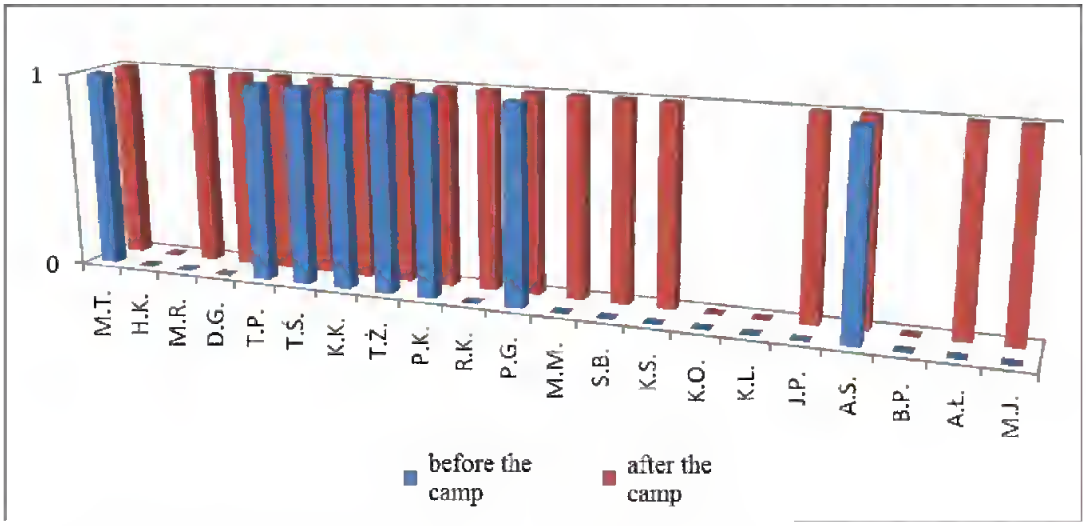

Fig. 4. The ability to change a seat before and after the camp.
T=3,074085 t=2,086 T>t

On the basis of the statistical test performed, it is concluded that the change of a given ability is statistically significant. After classes in the swimming pool, 9 people with paraplegia learned to change a seat independently, 8 people were able to perform this activity before the camp, and 4 people did not learne to change a seat independently during the camp.

Further research included the examination of to what extent activities in the swimming pool contributed to the ability to use the shower independently.

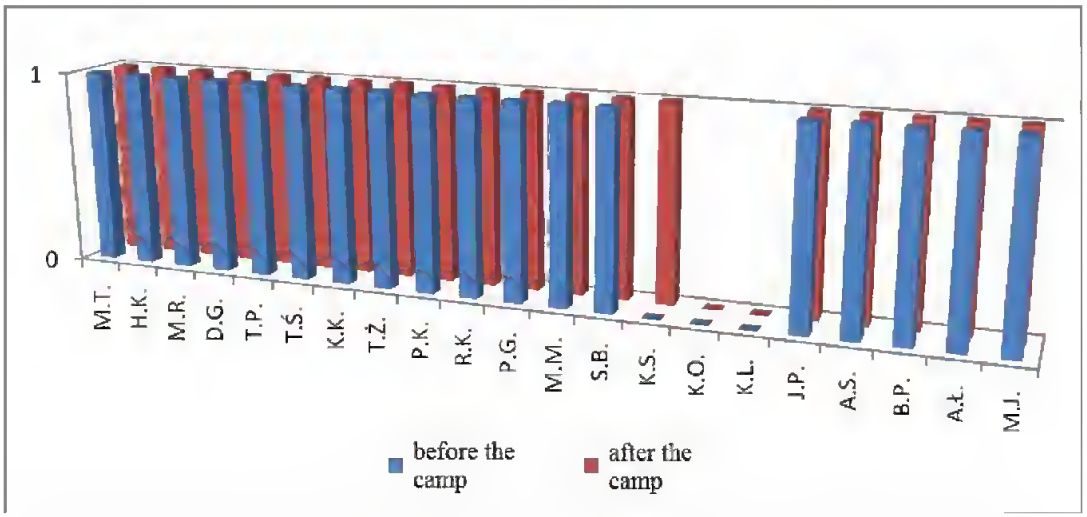

Fig. 5. The ability to use the shower independently before and after the camp.
T=1,024695 t=2,086 T<t

After the statistical calculations based on the results, it was stated that in the group of people with paraplegia the change of this ability is statistically insignificant. This is due to the fact that out of 21 people from this group, only 1 person acquired the ability to use the shower independently, 2 people did not learn to perform this activity, whereas the remaining 18 people were able to use the shower independently before the camp.

Another feature studied was the ability to use urological supply independently.

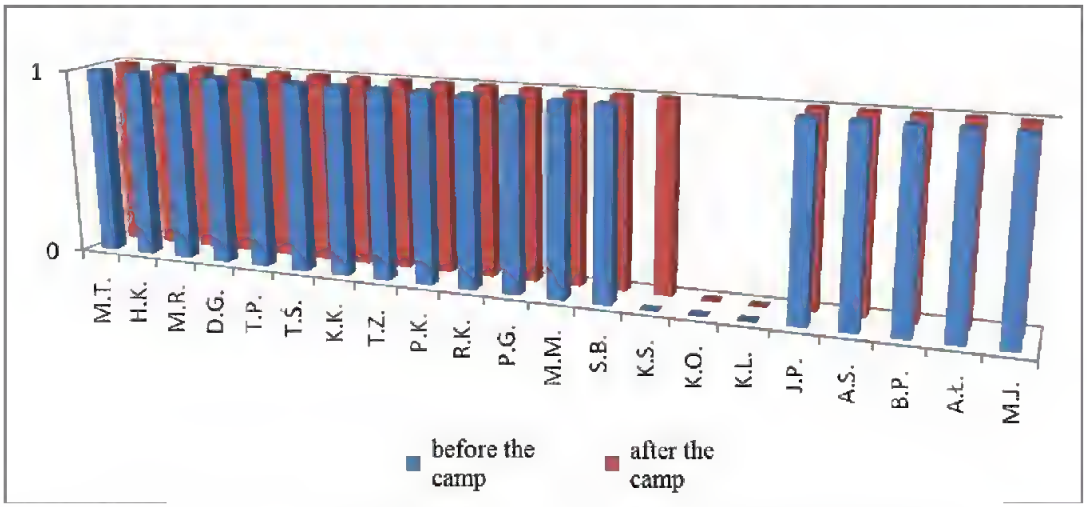

Fig. 6. The ability to use urological supply independently before and after the camp.
T=1.024695 t=2.086 T <t

Statistical results of Student's t-test indicate that the feature is statistically irrelevant. As in the previous case, the reason for such a test result is that as many as 18 people from this group were able to use urological supply independently before the camp. Only 1 person acquired this ability on swimming classes, and 2 people did not learn to use urological supply during the classes in the swimming pool. Then, it was examined whether a person with paraplegia can get used to water.

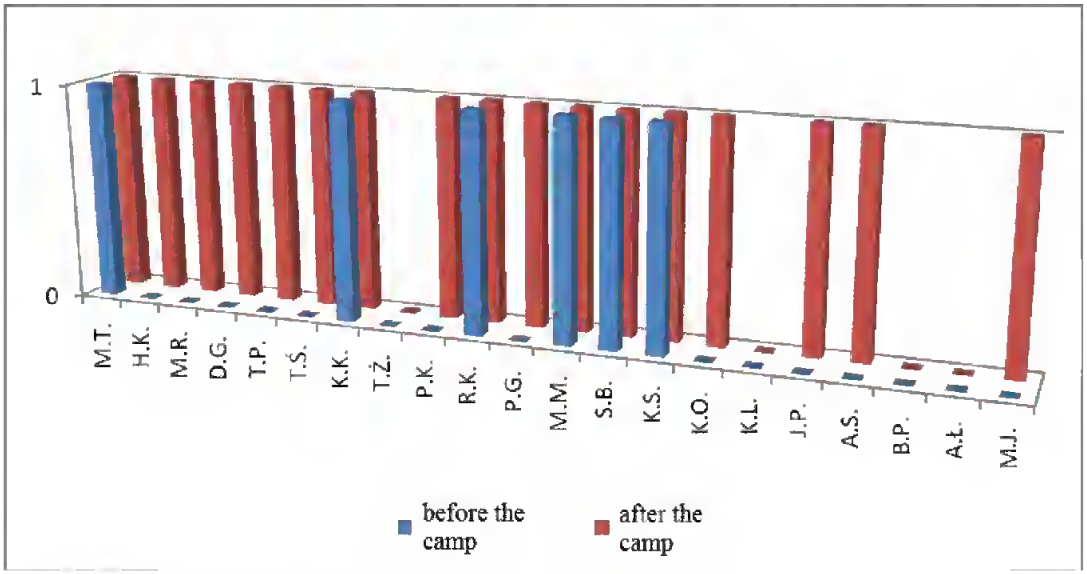

Fig.7. The ability to get used to water independetly before and after the camp.
T=3.398529 t=2086 T> t

After analyzing the results, it was found out that the ability to familiarize with water independently by a camp participant is statistically significant. In the group of the people with paraplegia, 6 people were accustomed to water even before the camp, 4 people did not acquire this ability during swimming classes, and as many as 11 participants got used to water during swimming training sessions on the FAR camp.

Another important activity that allows people with disabilities to use the swimming pool in the place of residence is the ability to self-entry into the swimming pool.

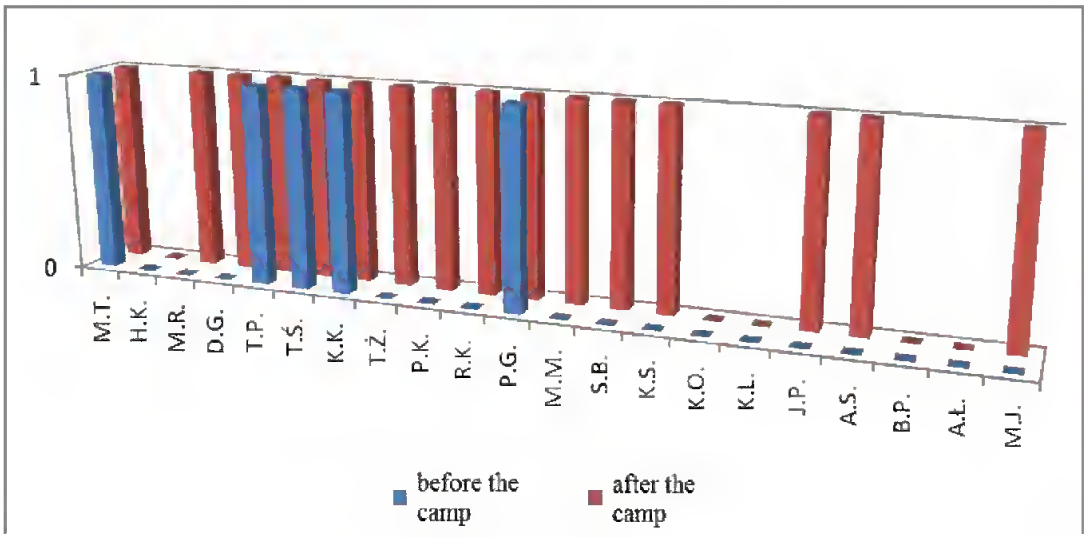

Fig.8. The ability to self-entry into the swimming pool before and after the camp.
T=3.398529 t=2.086 T> t

Statistical test showed that the ability to self-entry into the water in this study is a feature statistically significant. It was noticed that 11 people with paraplegia learned to entry into the water indepedently, 5 people were able to perform this activity even before the camp, and 5 people with disabilities did not acquire this skill during training sessions in the swimming pool.

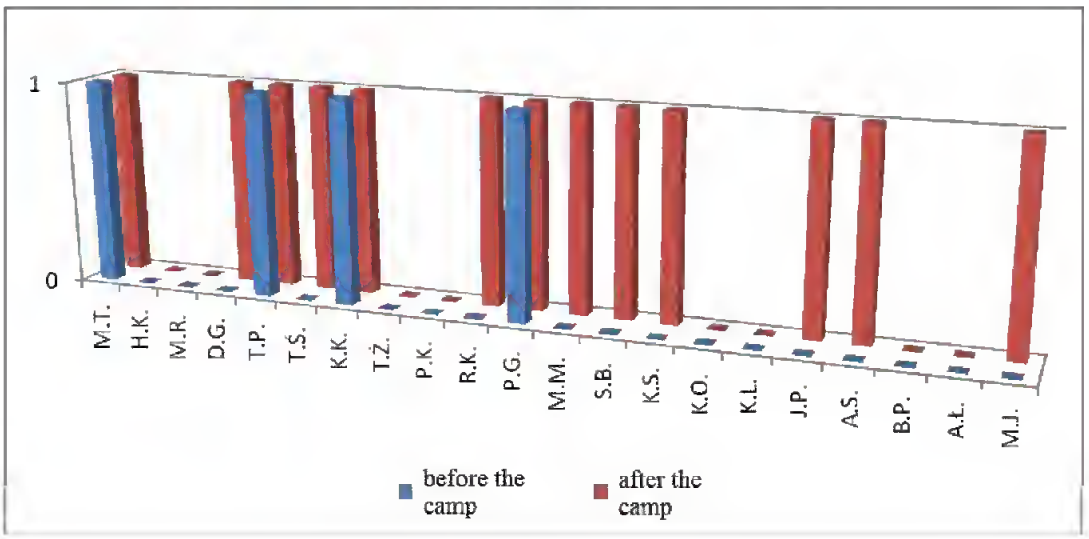

Fig .9. The ability to exit the swimming pool independently before and after the camp.
T=3.074085 t=2.086 T> t

Student's - t test confirmed that the change of the skill of self-exiting the

swimming pool is statistically significant. Out of 21 people with paraplegia, 4 people were able to get out of the swimming pool by themselves at the beginning of the camp, 8 people did not learn to perform this activity independently, whereas 9 participants acquired this skill during the swimming classes. In the next stage of the research experiment, the ability to breathe properly while swimming was examined.

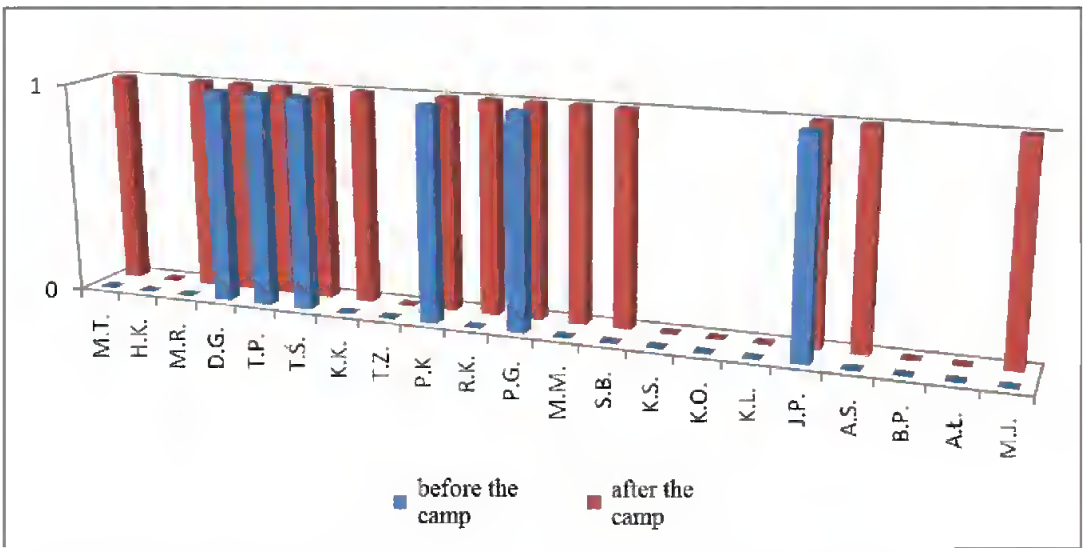

Fig.10. The ability to breathe properly in water before and after the camp.
T=2.898275 t=2.086 T> t

Statistical analysis showed that the change in proper breathing skills in water is statistically significant. In the group of the participants with paraplegia, 6 people were able to breathe properly in water at the beginning of the camp, 7 participants did not possess the skill during the classes on the camp, and 8 people with paraplegia learned to breathe properly in water during swimming training sessions.

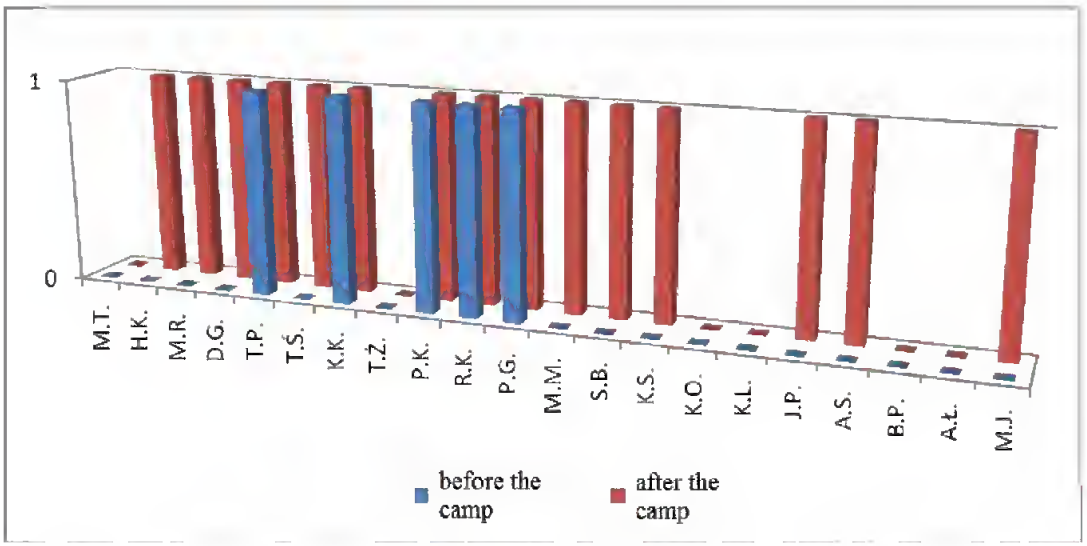

Fig.11. The ability to lie in water on one's back independently before and after the camp.

T=3.24037 t=2.086 T> t

On the basis of a statistical test, it can be concluded that the feature studied is statistically significant. At the beginning of the camp, only 5 people with paraplegia were able to lie in water on their backs independently, 6 disabled people did not learn to perform the activity during the camp, whereas 10 people with paraplegia acquired this ability during the classes in the swimming pool.

In the group of people with paraplegia, the ability of lying in water on one's stomach was examined.

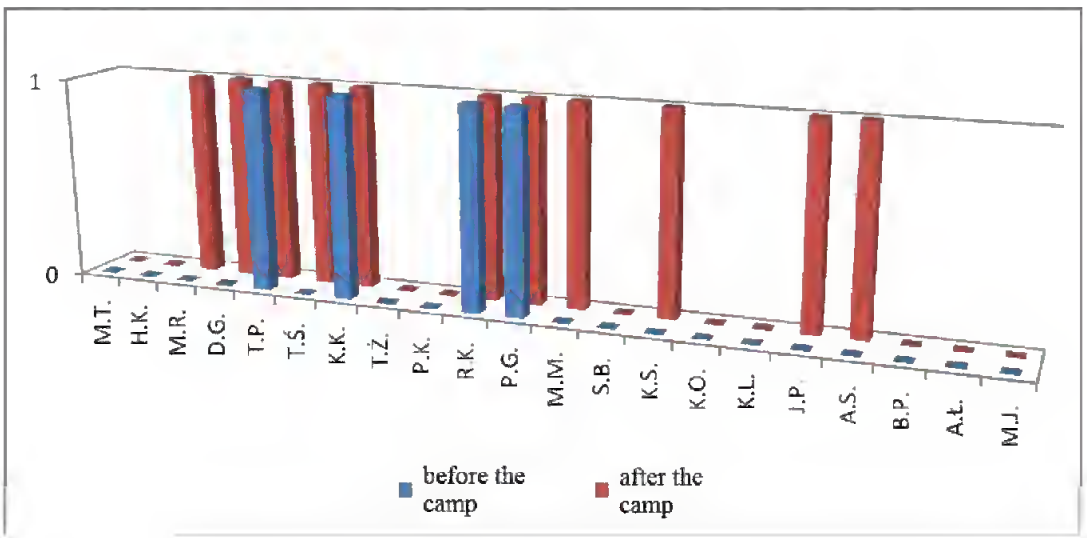

Fig.12. The ability to lie on one's stomach in water independently before and after the camp.

T=2.711088 t=2.086 T> t

Student's T-test has demonstrated that a change in the independence of lying on one's stomach in water in a group of people with paraplegia is statistically significant. It can be read from figure 15 that 4 people were able to lie on their stomachs in water independently at the beginning of the camp, 10 people with disabilities did not acquire this the skill during the training sessions, and 7 people with paraplegia learned to maintain independently their own position of lying on their stomachs in water during the camp.

Fig.13. presents how swimming classes conducted on the FAR camp affected the ability of independent body position changes in water.

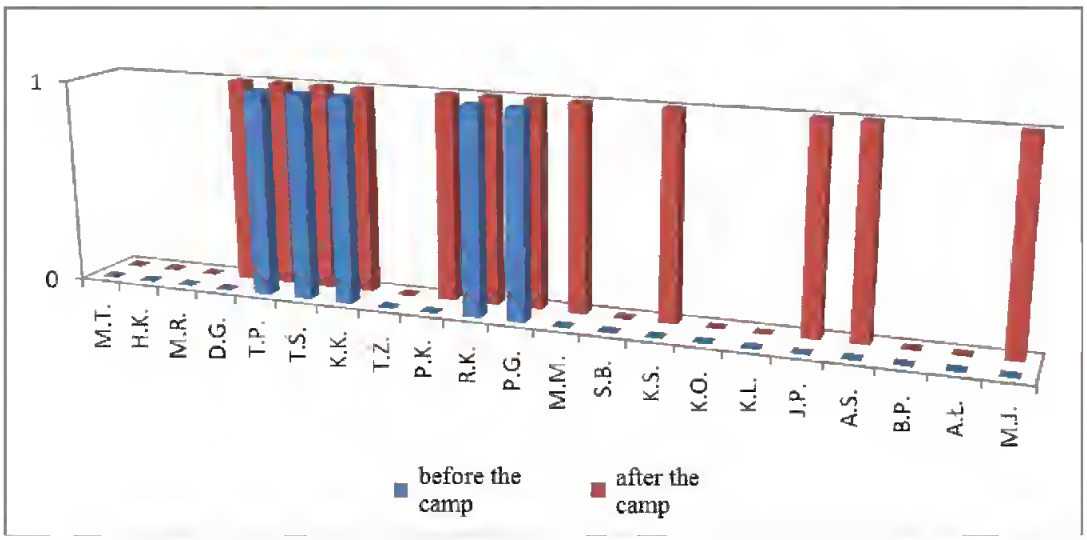

Fig.13. The ability to change the position in water independently before and after the camp.

T=2.711088 t=2.086 T> t

For this feature statistical test showed that it is statistically significant. It was noticed that at the beginning of camp, only 5 people were able to change position in water by themselves. After the camp, it appeared that 7 people acquired this ability during the classes in the swimming pool, and 9 people with paraplegia did not learn to change their position in water independently. During the swimming course, the ability to maintain an upright position in water was also estimated.

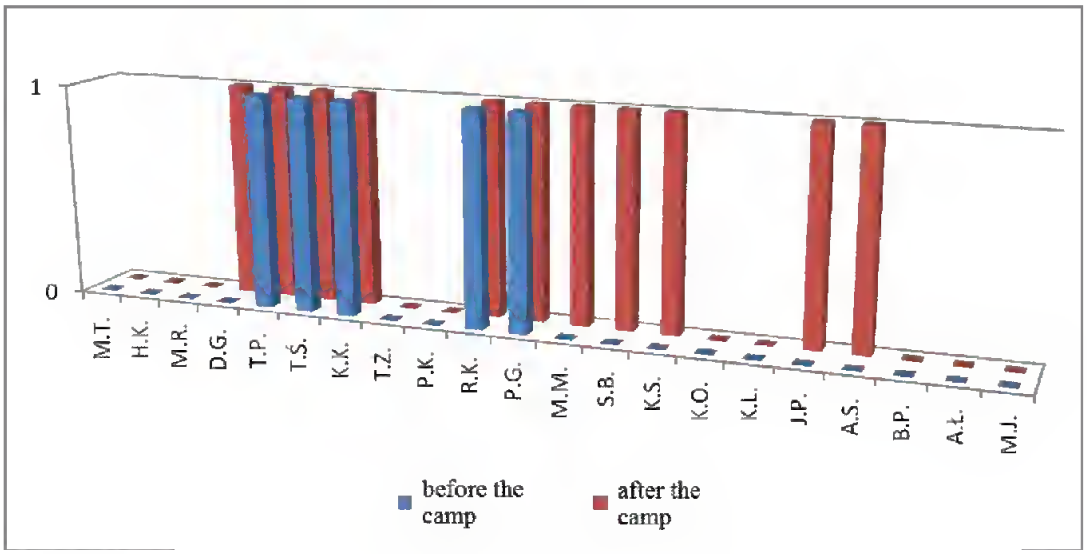

Fig.14. The ability to maintain an upright position in water before and after the camp.

T=2.50998 t=2.086 T> t

Student's T-test demonstrates that the change in the ability to maintain an upright position in water is statistically significant. After the camp, 6 people were able to maintain an upright position in water by themselves, 5 people have already mastered this skill before the camp, whereas 10 people with paraplegia did not learn to keep an upright position in water.

Fig.15 presents the results of the level of familiarization with water.

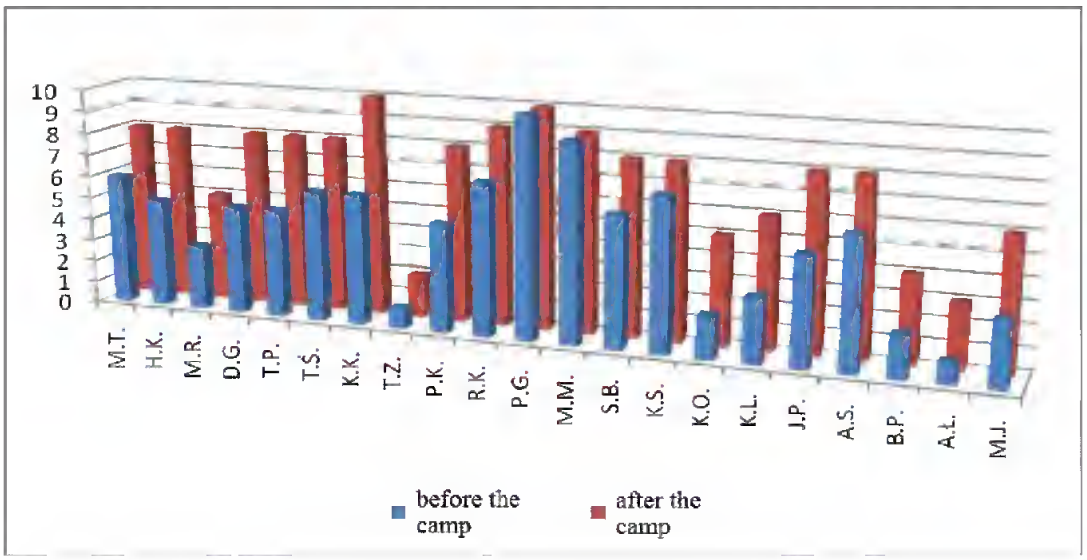

Fig.15. The level of familiarization with water in the group of people with paraplegia before and after the camp.

T=4.267491 t=2.086 T> t

Statistical test demonstrated that the change in the feature after the training sessions in the swimming pool on the camp is statistically significant. The graph shows a significant increase in the level of familiarization of the people with paraplegia with water.

The next figures show the extent to which people with paraplegia mastered various swimming strokes. Each stroke was assessed in a scale from "1" to "10".

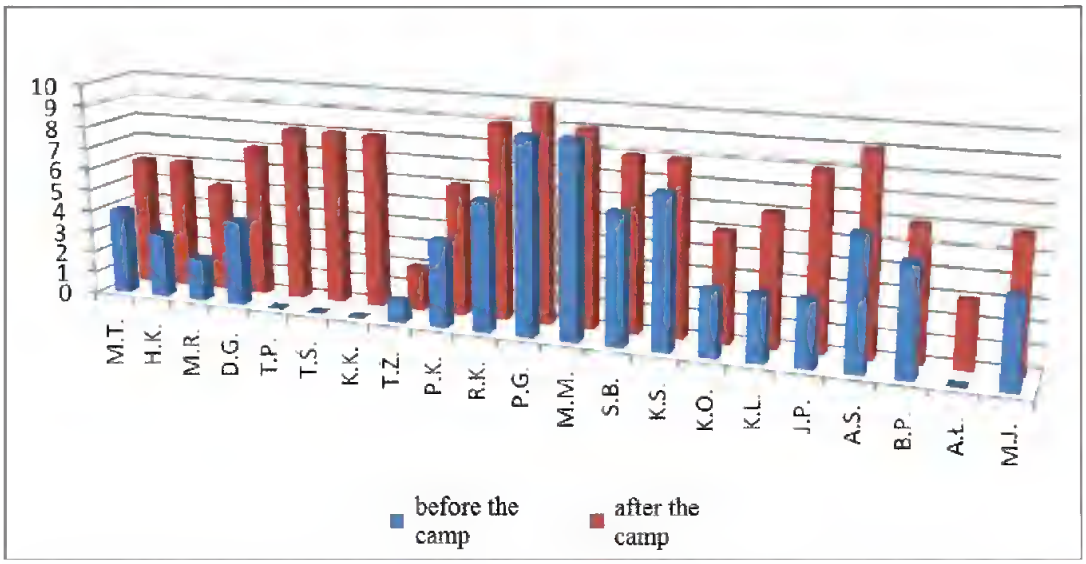

Fig.16. The level of "eagle" swimming style acquisition before and after the camp.
T=3,761299 t=2,086 T>t

The test of Student's t proved that the change of "eagle" swimming style ability is statistically significant. The figure shows that each participant with paraplegia improved significantly the ability of swimming in this style or acquired this ability during swimming pool activities.

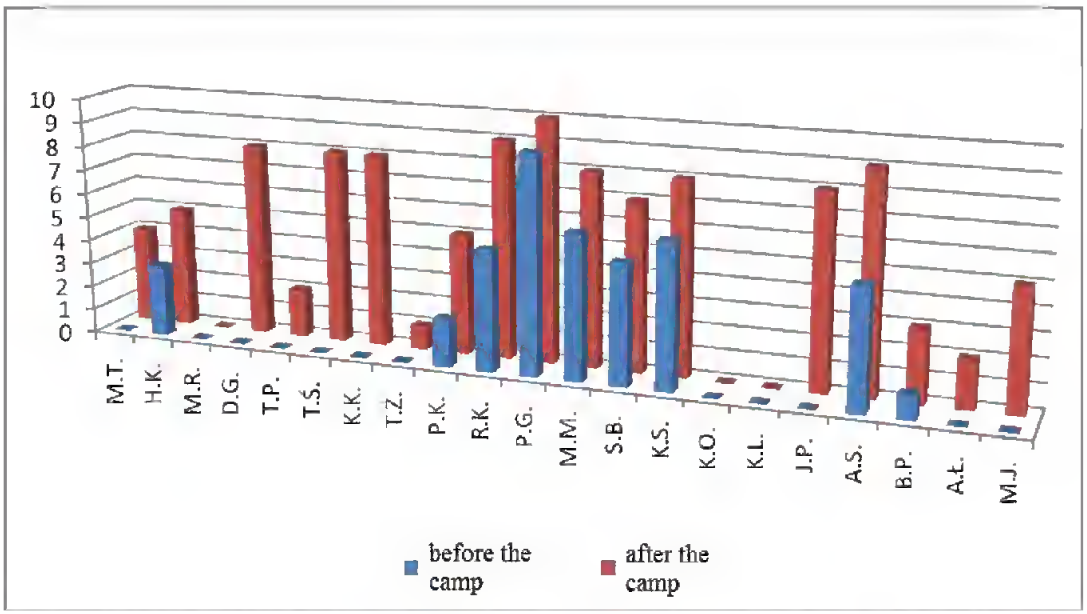

Fig.17. The level of "stork" swimming style acquisition before and after the camp.
T=3,632283 t=2,086 T>t

On the basis of calculations made with the use of Student's t - test it was stated that the change of "stork" swimming style ability in people with paraplegia was statistically significant. The figure shows that the majority of handicapped learnt or improved their ability to swim in this style during activities at the camp.

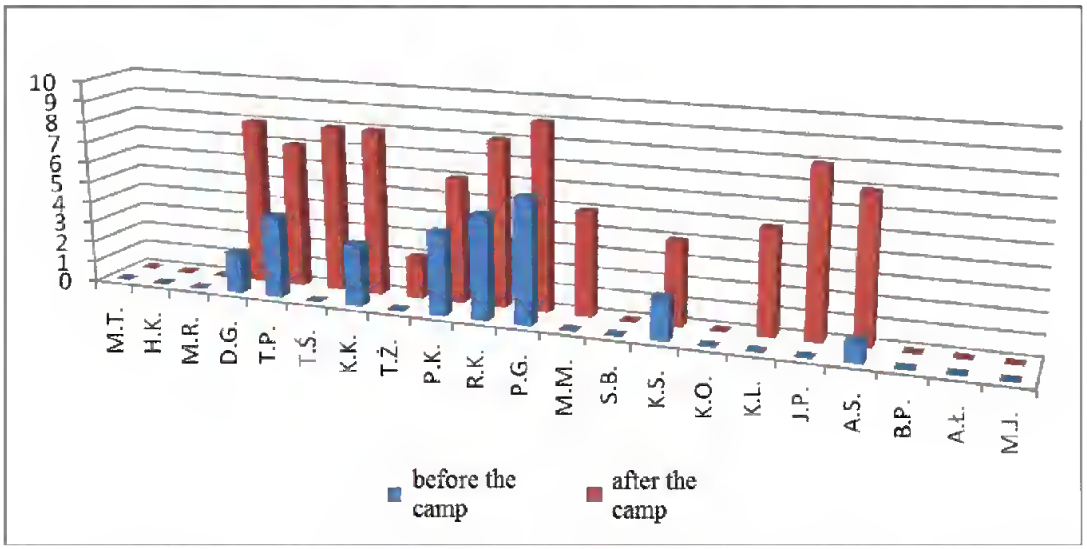

Fig.18. The level of backstroke swimming style acquisition before and after the camp.
T=3,35396 t=2,086 T>t

The conducted analysis proves that the given feature is statistically significant. The figure shows that 5 people with paraplegia learnt to swim in this style at the camp, 8 people improved their technique of backstroke swimming and 8 people did not acquire this style of swimming.

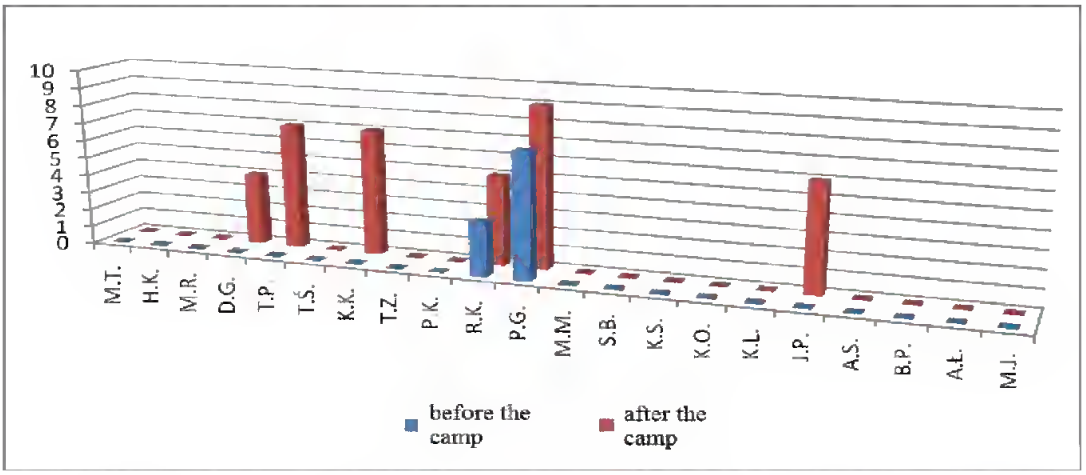

Fig.19.The level of crawl "B" swimming style acquisition before and after the camp.

T=2,28257 t=2,086 T>t

After statistic Student's t-test it is stated that the change of the given feature is statistically significant. The figure suggests small number of people with paraplegia who learnt to swim in asymmetric backstroke style however those who succeeded in this style acquired also a high level of swimming in crawl "B" technique.

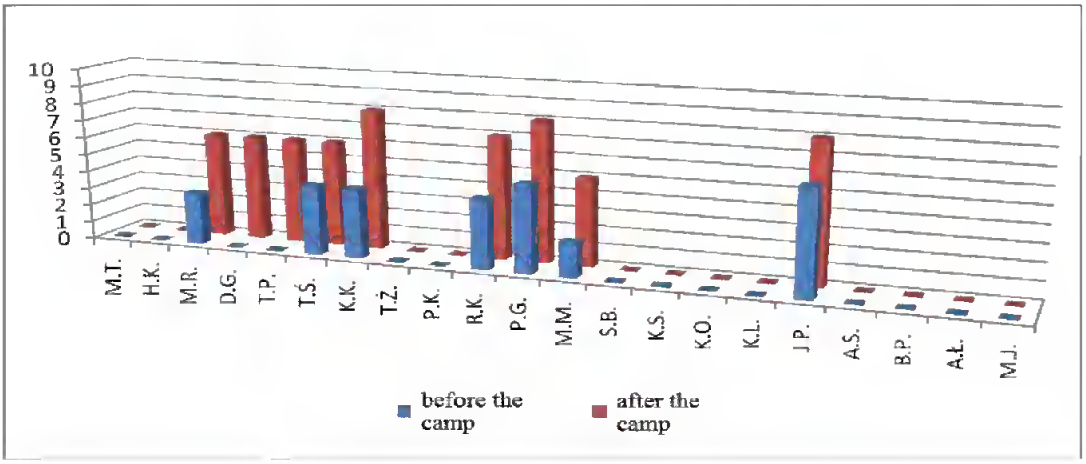

Fig.20. The level of breaststroke swimming style acquisition before and after the camp.

T=2,854024 t=2,086 T>t

Student's t-test proved that the change in ability of swimming in breaststroke style is statistically significant. Among the group of campers with paraplegia 9 people swimming in this style achieved quite high level of breaststroke swimming ability.

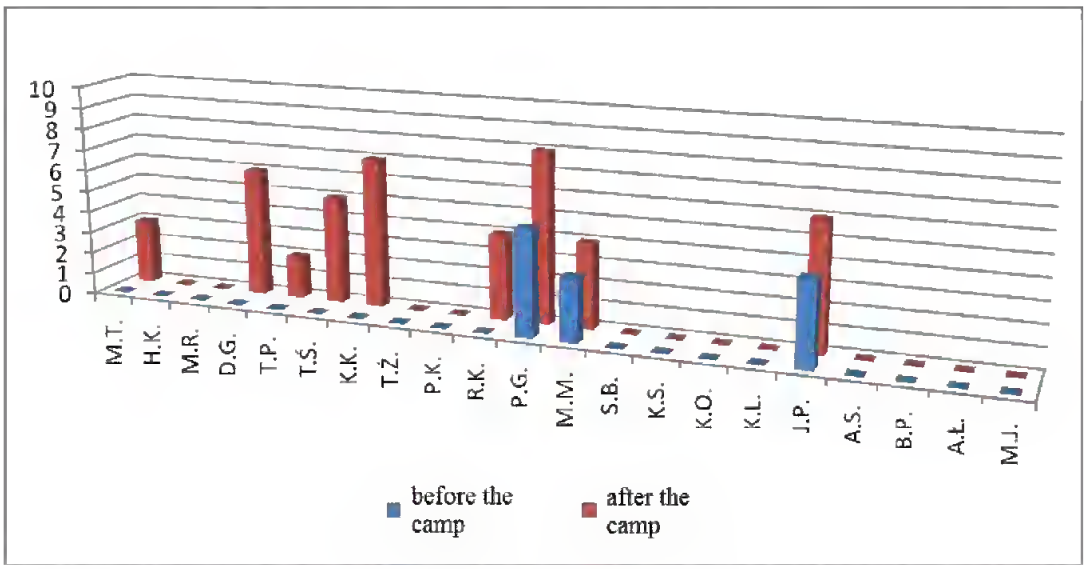

Fig.21. The level of crawl "A" swimming style acquisition before and after the camp.

T=2,733776 t=2,086 T>t

Carrying out the statistic test showed that the change of the feature is statistically significant. Among 21 people with paraplegia taking part in the camp 9 people improved their crawl "A" swimming style during swimming pool activities. Next swimming technique described in FAR teaching methodology is butterfly stroke – dolphin. Because of the difficulty in acquiring this style, none of the group of 21 campers learnt to swim in this technique.

During the activities underwater swimming was taught and assessed.

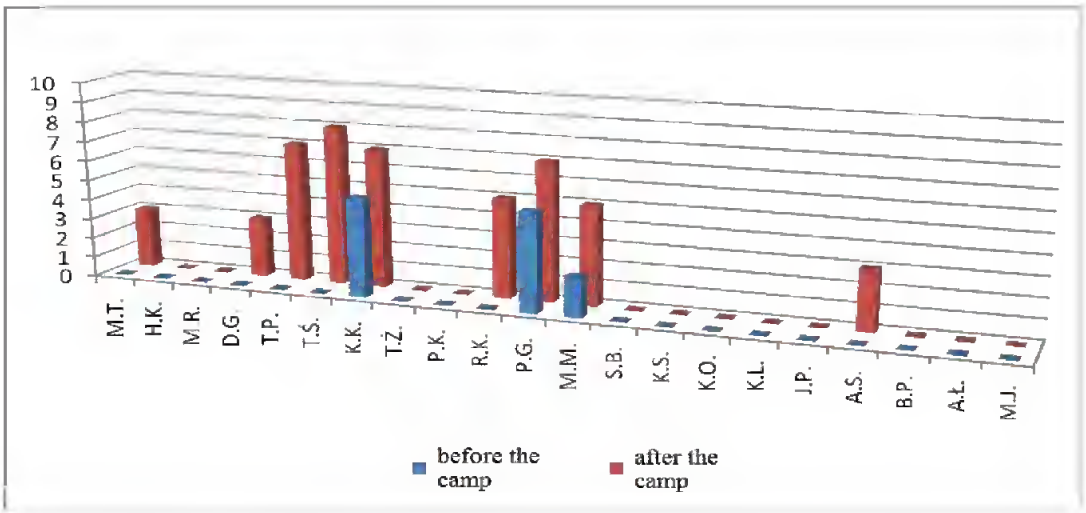

Fig.22. The level of underwater swimming style acquisition before and after the camp.

T=2734396 t=2,086 T>t

On the basis of conducted statistic test the change of ability to swim underwater is statistically significant. 9 people could swim underwater after the camp.

The test also checked whether muscular force (described in ASIA scale) influenced the level of change in ability of acquisition of particular swimming styles.

Table 1. Correlation of ASIA scale and the change of ability of swimming in different techniques.

	ASIA scale
Water acquintance	-0,21382
"Eagle"	0,166306
"Stork"	-0,00189
Backstroke	0,048637
"B" crawl	0,155513
Breaststroke	0,375994
"A" crawl	0,340636
Underwater swimming	0,319914

Calculations of Pearson's linear correlation factor show that stronger muscular force in people with paraplegia does not significantly influence the acquisition of swimming styles taught at the FAR camp.

The results worked up on the basis of FAR camp participants with tetraplegia. Also 9 people with the injury of cervical part of spine took part in the camp. In this group of people with tetraplegia, the change in independent dressing and undressing was assessed after the swimming pool activities.

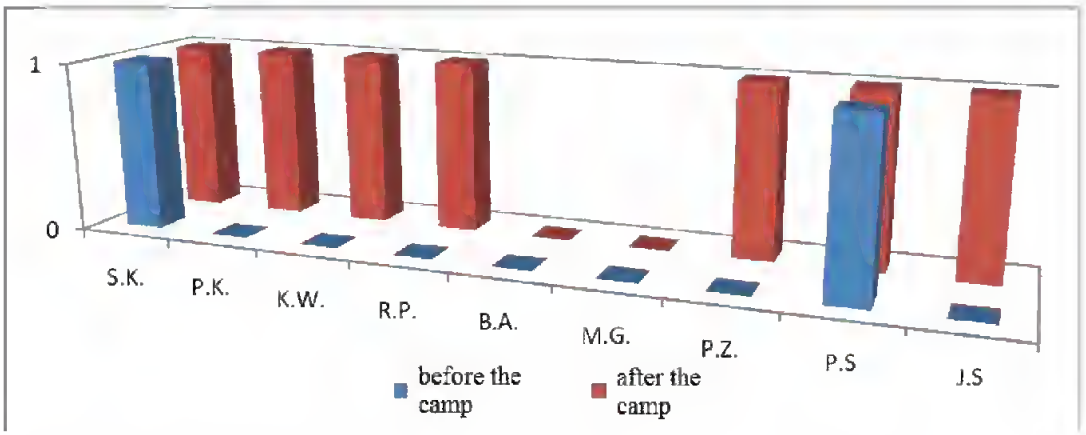

Fig.23. The ability of independent undressing before and after the camp.
T=2,371708 t=2,306 T>t

The student's t-test showed that the change of a given feature is statistically significant. Among 9 people with tetraplegia 2 participants could undress without help before the camp, 5 participants learnt to undress after swimming activities and 2 people did not learn this skill at the camp.

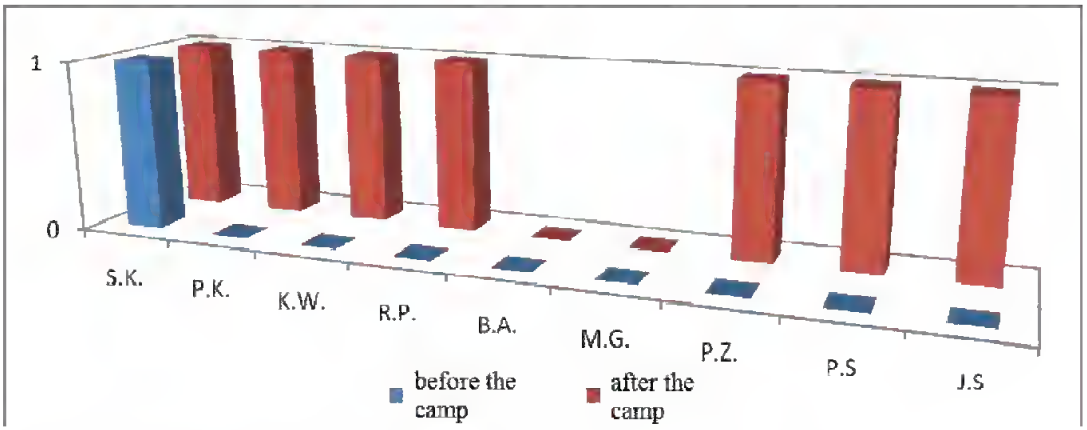

Fig.24. The ability of independent dressing before and after the camp.
T=2,598076 t=2,306 T>t

On the basis of Student's t-test the statistical significance of change in independent dressing acquired after the camp was proven. From the group of 9 people with cervical part of spine injury 6 participants acquired this ability after the swimming pool activities, 1 person could dress independently before the camp and 2 people did not learn this skill at all.

The next assessed feature concerned independent going to the lavatory.

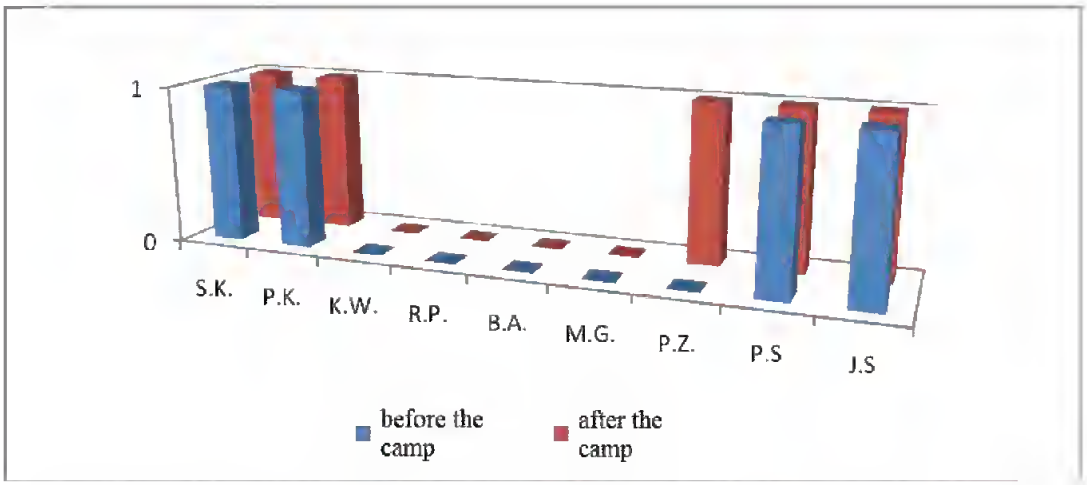

Fig.25. The ability of independent going to the lavatory before and after the camp.
T=1,06066 t=2,306 T<t

Statistic calculations show that in case of people with tetraplegia the change in this feature after the camp is not statistically significant. It results from the fact that people with tetraplegia have partially paralysed upper extremities what makes difficult for them to perform precise movements needed for independend using the lavatory. Among 9 people with tetraplegia only 1 person learnt how to use the lavatory independently. 4 people could do it independently before the camp.

Fig.26 shows the influence of swimming pool activities on the ability of independent moving to the other seat by people with tetraplegia.

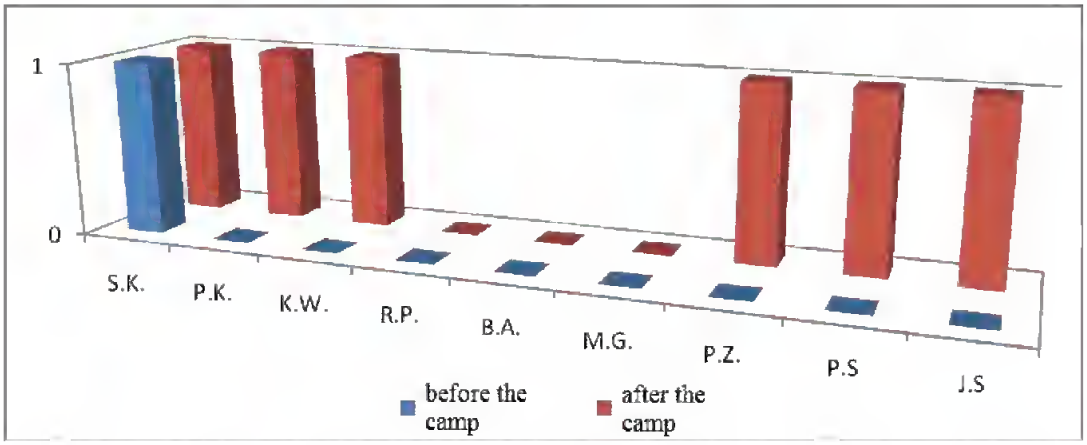

Fig.26. The ability of independent moving to the other seat before and after the camp.
T=2,371708 t=2,306 T>t

In case of the group of people with tetraplegia the Student's t-test shows that the change in ability of independent changing seats after the camp is statistically significant. 5 people with tetraplegia acquired this ability after the swimming activities, 1 person could do it before the camp and 3 people did not learn this skill at all.

The next feature assessed at the camp was the ability of independent taking the shower.

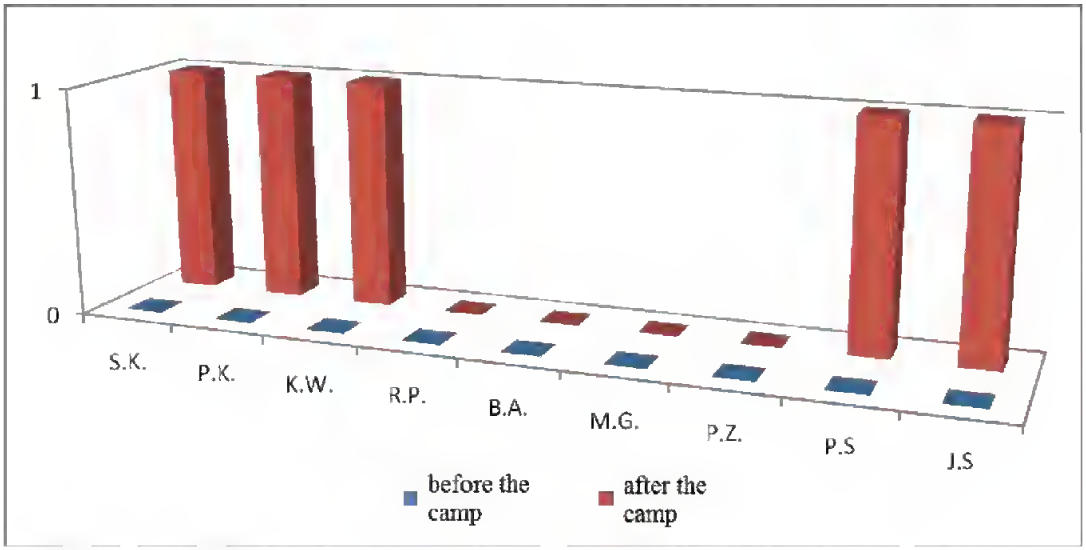

Fig.27. The ability of independent taking the shower before and after the camp.
T=2,371708 t=2,306 T>t

After the Student's t-test it was stated that the results of change presented in the figure above were statistically signicant. The figure visibly shows that swimming pool activities improved the independent shower taking by people with tetraplegia. 5 of 9 participants could do it after the camp.

The ability to put on urological supplies by the participant was the next feature assessed.

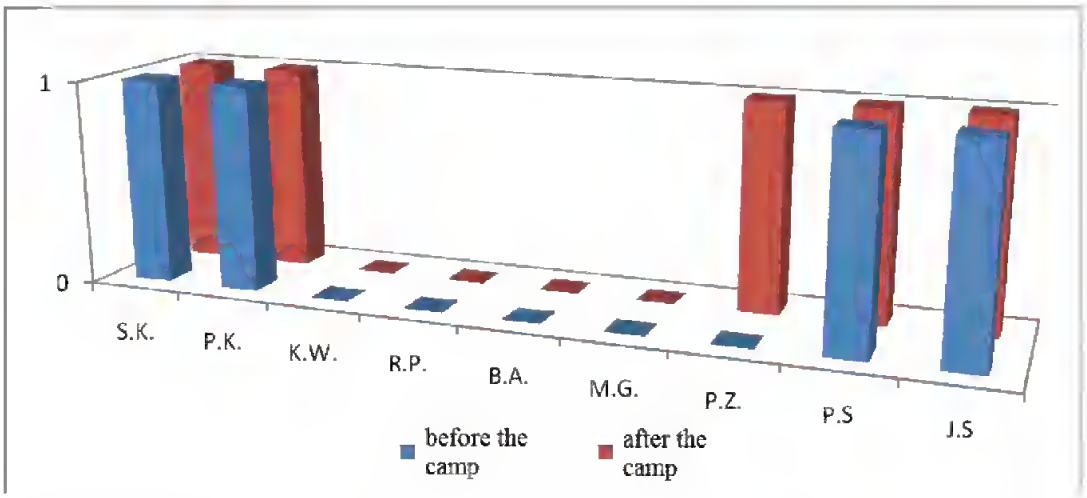

Fig.28. The ability to put on urological supplies without others' help before and after the camp.
T=1,06066 t=2,306 T<t

Student's t – test showed that given results of the examined feature were not statistically significant. Among the participants 4 people could do it before the camp and only 1 person with tetraplegia learnt it during the camp.
During the camp the ability of independent water acquaintance was assessed.

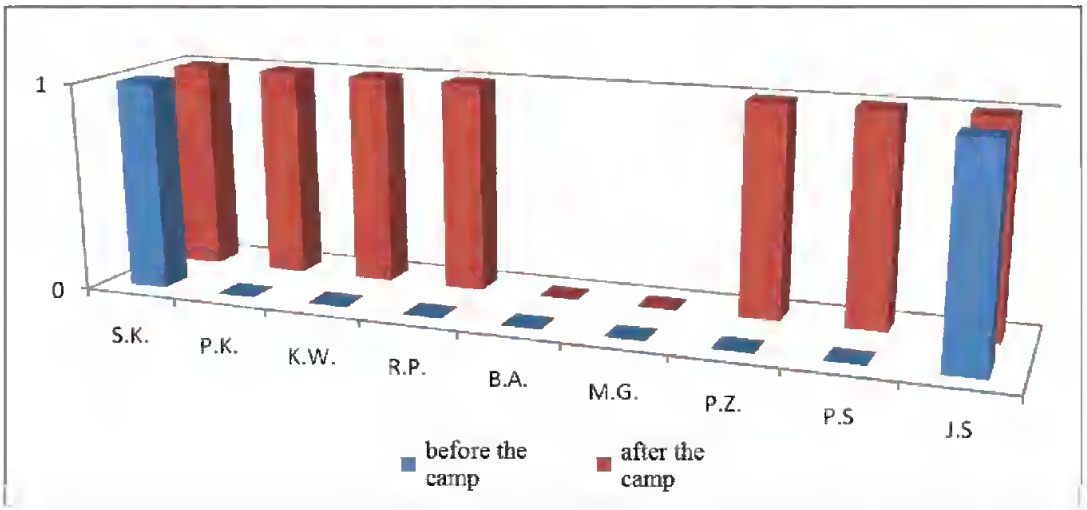

Fig.29. The ability of independent water acquaintance before and after the camp.
T=2,371708 t=2,306 T>t

The conducted test shows that the change of the examined feature is statistically significant. 7 people with tetraplegia were acquinted with water after swimming activities at the camp and 2 did not get used to water during the camp.
One of the most important activities assessed during the camp was the independent descent and exit from water at the swimming pool by people with tetraplegia.

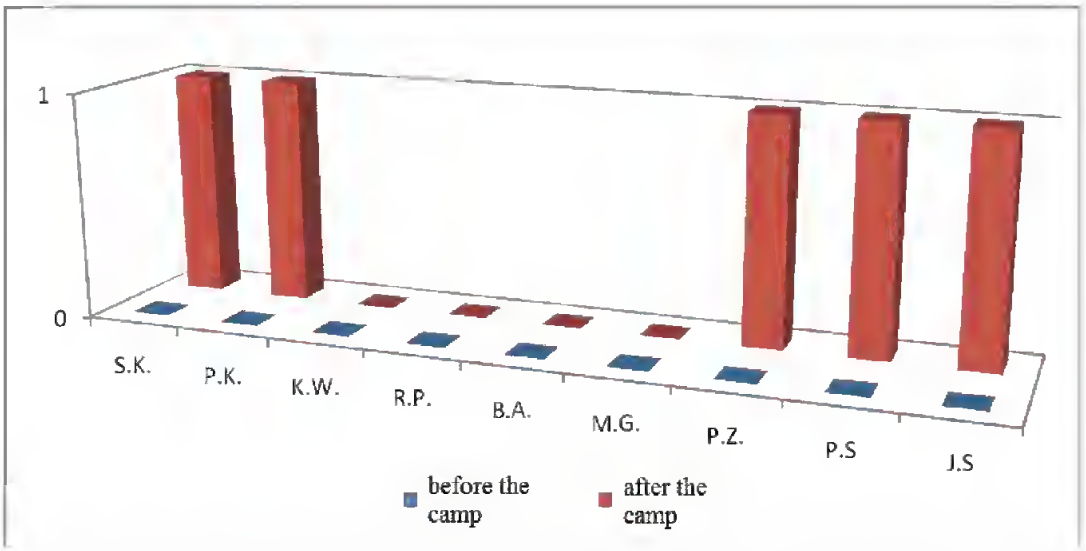

Fig.30. The ability of independent descent to water before and after the camp.
T=2,371708 t=2,306 T>t

The result of the statistical research proved that the chage of assessed ability was statistically significant. 5 people of the group of participants with tetraplegia learnt the skill to descent to water without help during the camp.

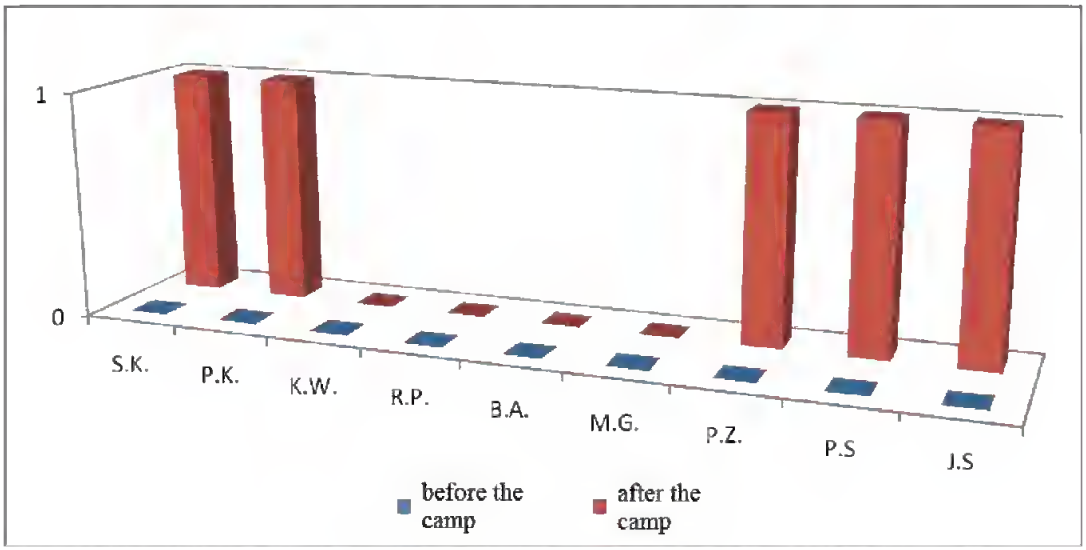

Fig.31. The ability of independent exit from water before and after the camp.
T=2,371708 t=2,306 T>t

Student's t-test proved that the change of ability to exit from water without help is a statistically significant feature. 5 people with tetraplegia were noticed to learn the skill of independent exit from water during the camp and 4 participants did not acquire this ability at all.

The ability of proper breathing in water was also observed during swimming activities.

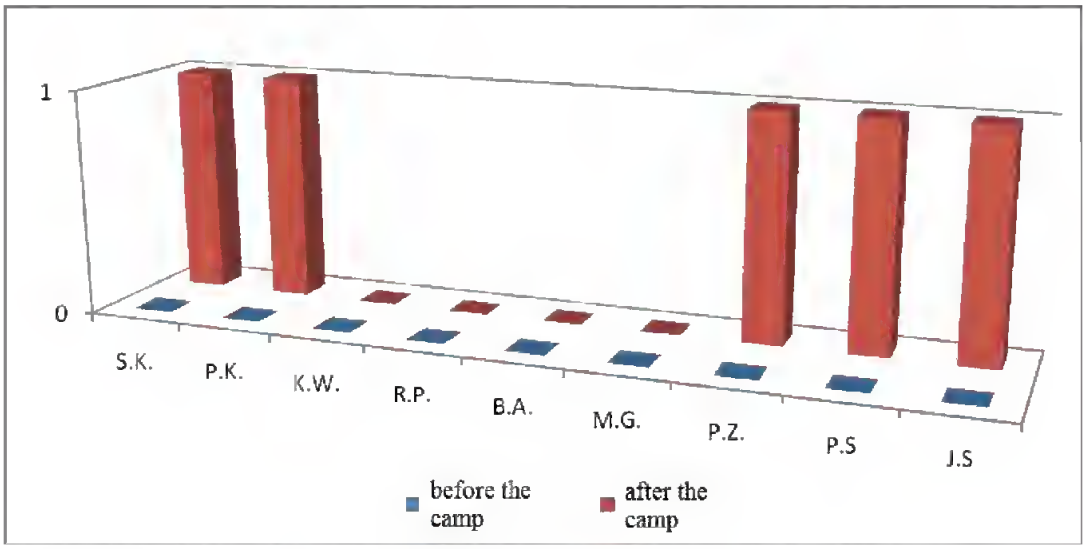

Fig.32. The ability of proper breathing in water before and after the camp.
T=2,371708 t=2,306 T>t

After the statistical test it was stated that the change in performing this skill was statistically significant. Among 9 people with tetraplegia 5 acquired this skill. The rest did not learn how to breath properly in water.

The ability of independent lying on the water surface, on the back and on the belly was another assessed feature.

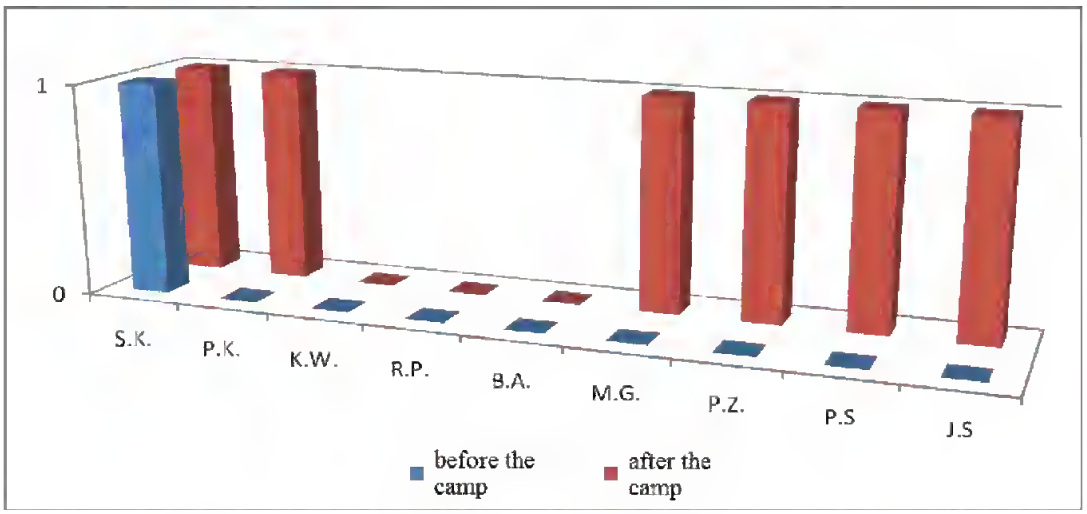

Fig.33. The ability of independent lying on the back on the water surface before and after the camp.
T=2,371708 t=2,306 T>t

Student's t- test showed that the change of independent lying on the water surface on the back is significant statistically. 6 people with tetraplegia could lay on the water surface on the back after swimming activities at the FAR camp.

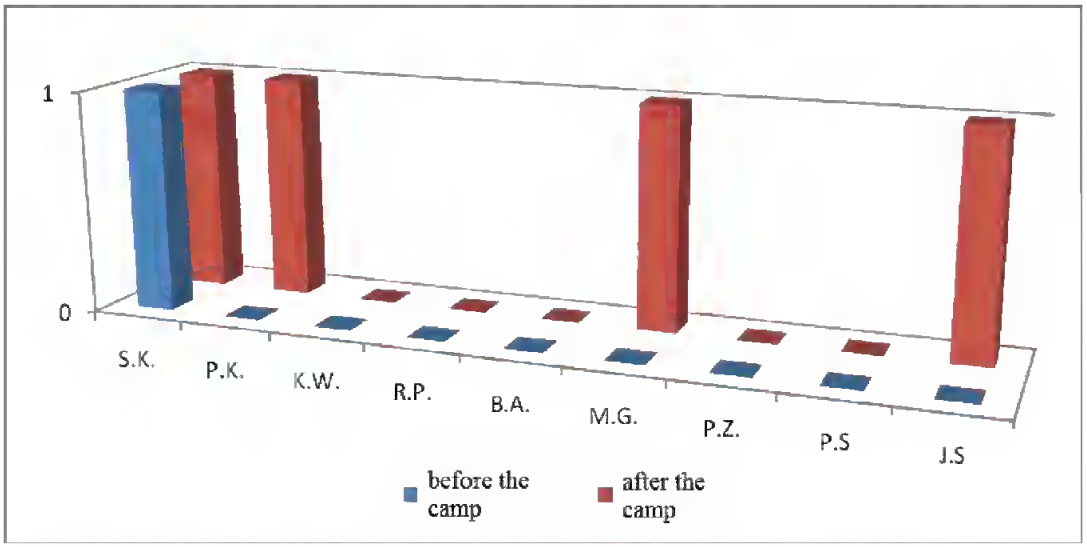

Fig.34. The ability of independent lying on the belly on the water surface.
T=1,837117 t=2,306 T<t

On the basis of values of the Student's t- test it was stated that the ability of independent lying on the belly on the water surface after the camp is not statistically significant. Only 3 out of 6 people with tetraplegia acquired this ability during the camp and 1 person had this ability at the beginning of the camp. 5 people did not learn this skill.

During the camp, the participants were taught to change position in water without help.

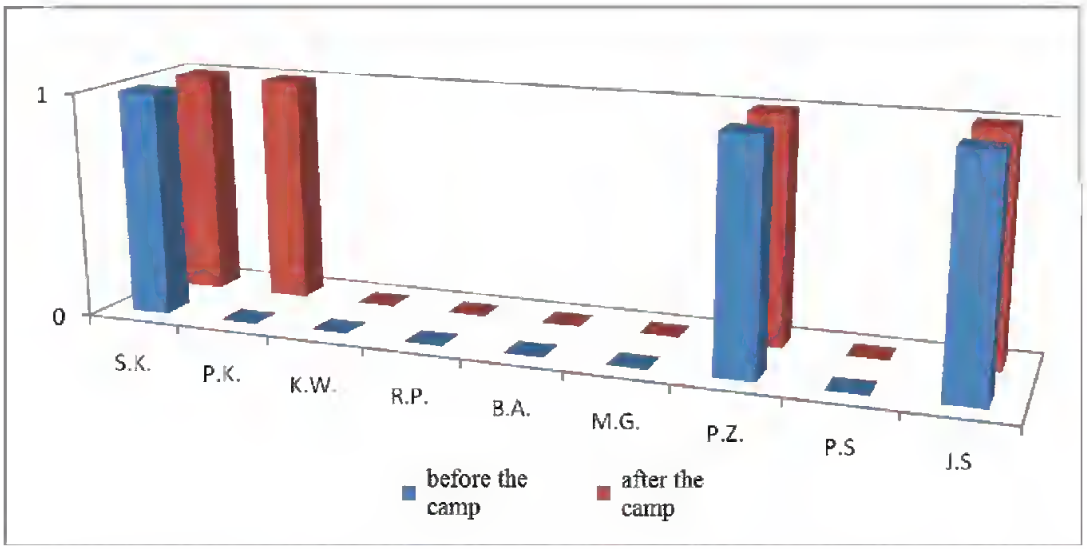

Fig.35. The ability of independent change of the position in water before and after the camp.
T=1,06066 t=2,306 T<t

Statistical examination showed that the change of this feature is not statistically significant. Only 1 person with tetraplegia could change position in water without help during the camp.

The ability to maintain vertical body position in water was also subjected to the assessment.

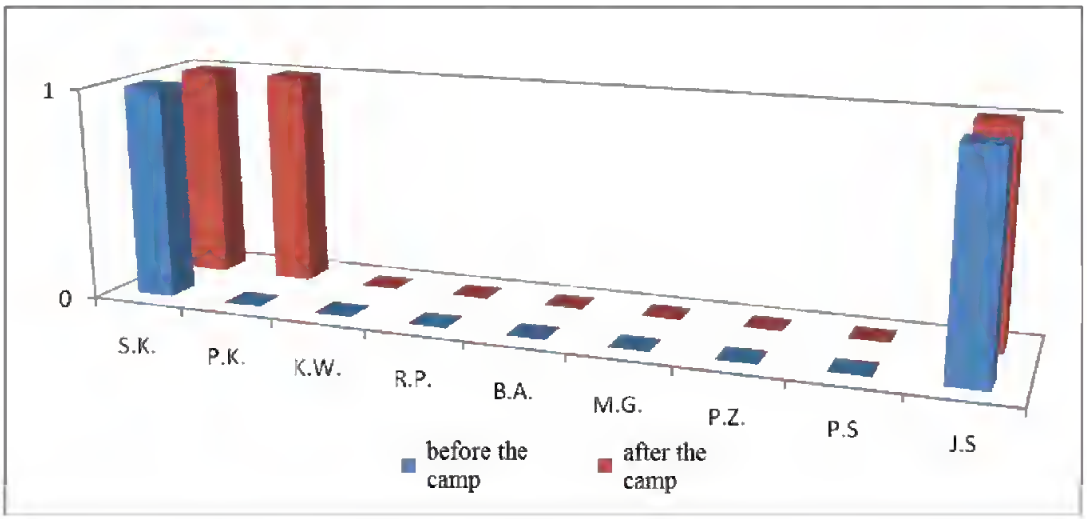

Fig.36. The ability to maintain vertical body position in water before and after the camp.
T=1,06066 t=2306 T<t

Student's t-test showed that the change of this feature was not statistically significant. Only 3 people with tetraplegia could maintain vertical body position in water after the camp.

The following part presents the level of particular swimming styles acquisition. A scale from 1 to 10 was applied. First, the level of acquaintance with water was assessed, before and after the camp.

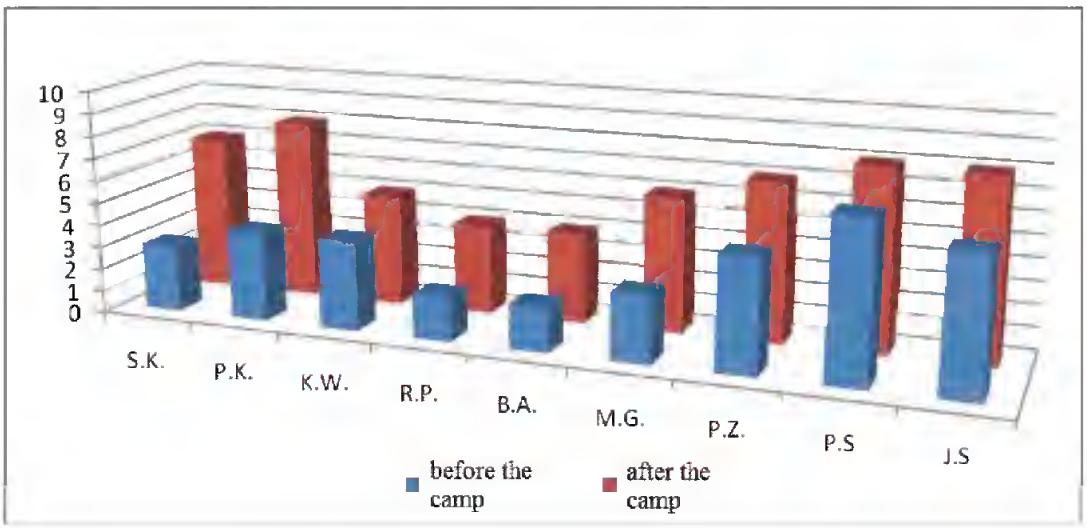

Fig.37. Water acquaintance in people with tetraplegia before and after the camp.
T=2,89981 t=2,306 T>t

On the basis of values given by the Student's t-test it was stated that the results were statistically significant. The figure shows clear increase of water acquaintance level in the group of the camp participants after the swimming activities.

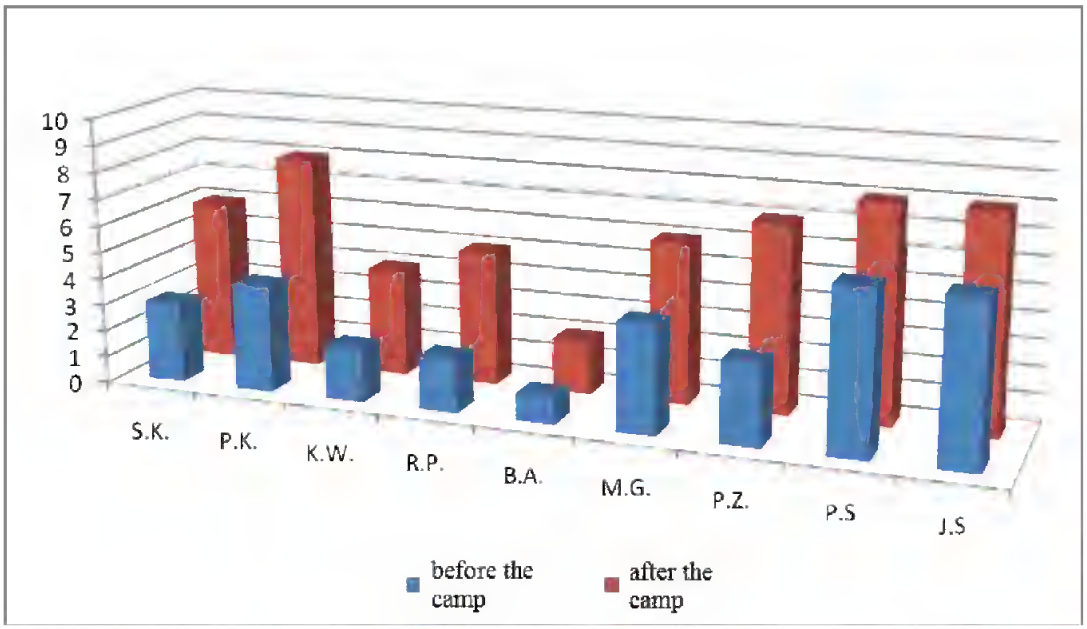

Fig.38. The level of "eagle" swimming style acquisition before and after the camp.
T=2,980346 t=2,306 T>t

Statistical test proved that the change of ability to swim in the "Eagle" style was statistically significant. All participants from the group of people with tetraplegia significantly improved their ability to swim in the "Eagle" style.

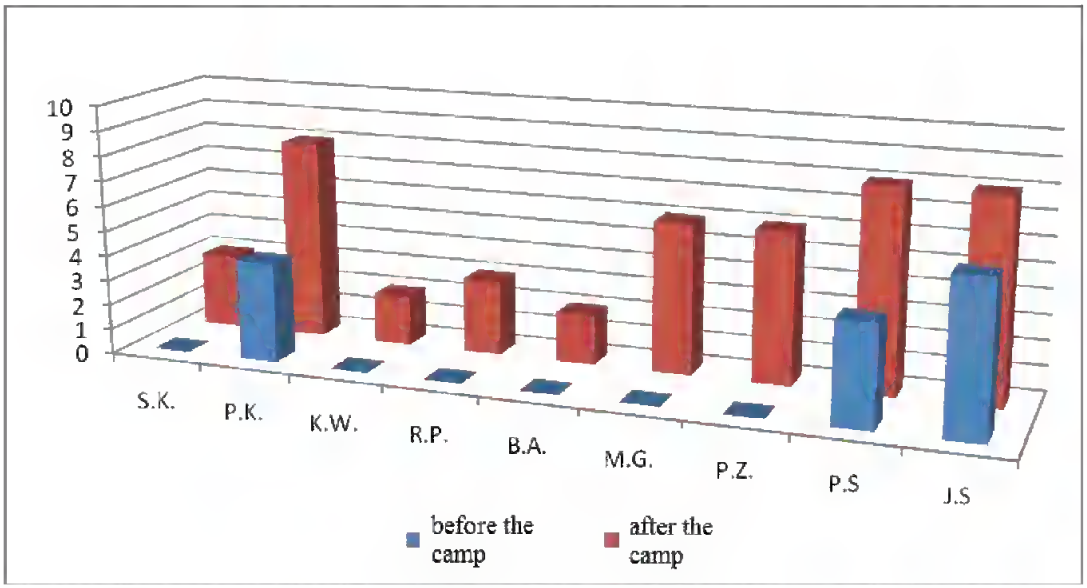

Fig.39. The level of "Stork" swimming style acquisition before and after the camp.
T=2,932067 t=2,306 T>t

Student's t-test showed that the change of the level of ability to swim in the "Stork" style was statistically significant. All participants with tetraplegia could swim in this style during the camp.

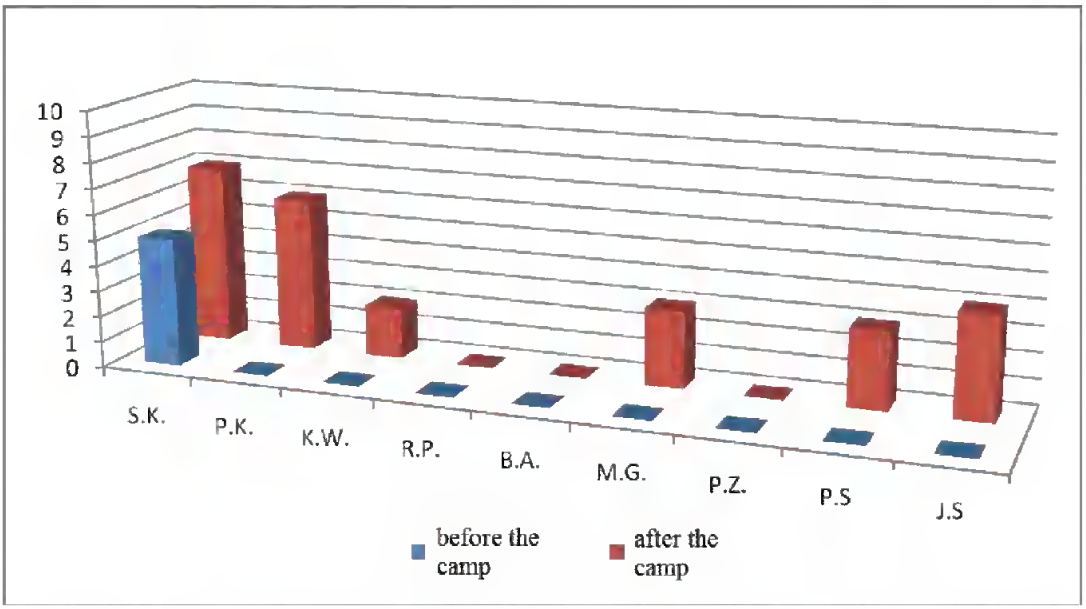

Fig.40. The level of symmetrical backstroke style acquisition before and after the camp. T=2,401922 t=2,306 T>t

After the statistical test had been conducted it was noiced that the change of the given feature was statistically significant. 6 FAR camp participants with tetraplegia learnt to swim in symmetrical backstroke style during swimming activities.

Crawl "B" style, called asymmetrical backstroke, was another technique assessed at the camp. Unfortunately, none of the participants with tetraplegia did not acquire this ability at the camp.

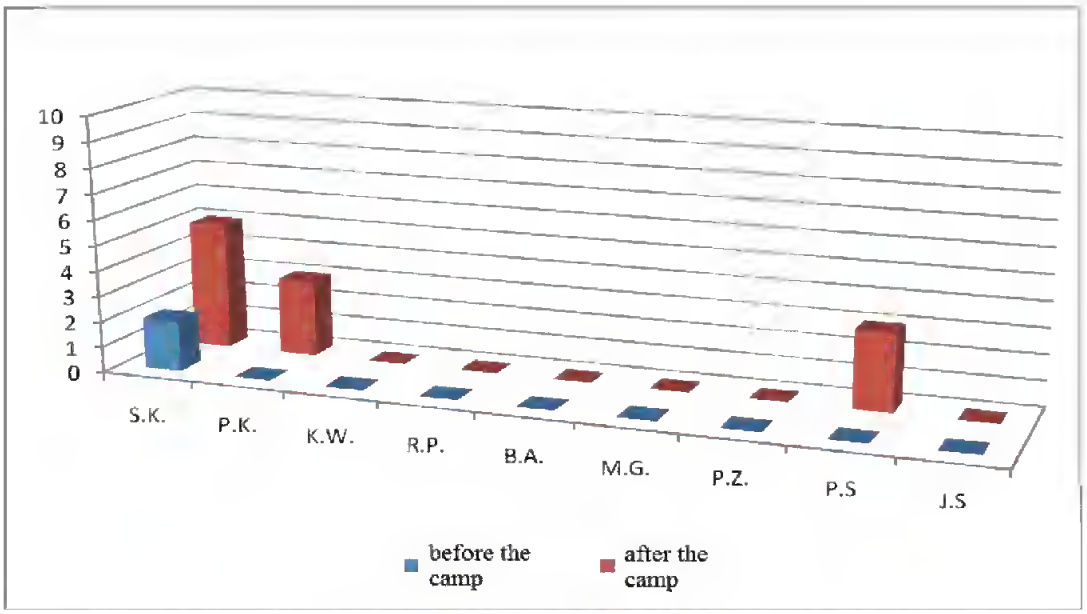

Fig.41. The level of breaststroke style acquisition before and after the camp.
T=1,800735 t=2,306 T<t

The test results proves that the change of the examined feature is not statistically significant. Only 3 people with tetraplegia learnt to swim in this style whereas the rest of this group did not acquire this ability at all.

Freestyle swimming or crawl "A" is another style taught at the camp in the group of people with tetraplegia.

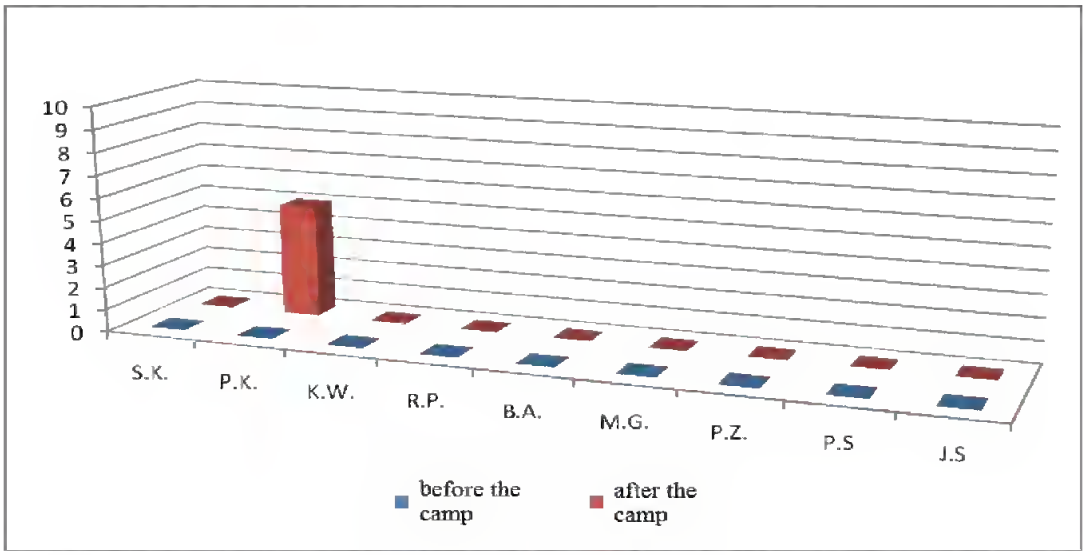

Fig.42. The level of crawl "A" swimming style acquisition before and after the camp.
T=1,06066 t=2,306 T<t

The Student's t-test shows that the change of level of freestyle swimming acquisition after the camp is not statistically significant. Only 1 person with tetraplegia learnt to swim in this style during the FAR camp.

Butterfly stroke – dolphin is the next technique taught at the camp. This style of swimming turned out to be too difficult for the participants with tetraplegia. The test results showed that none of the people of this group acquired the ability to swim in this style.

Swimming underwater was also assessed at the camp.

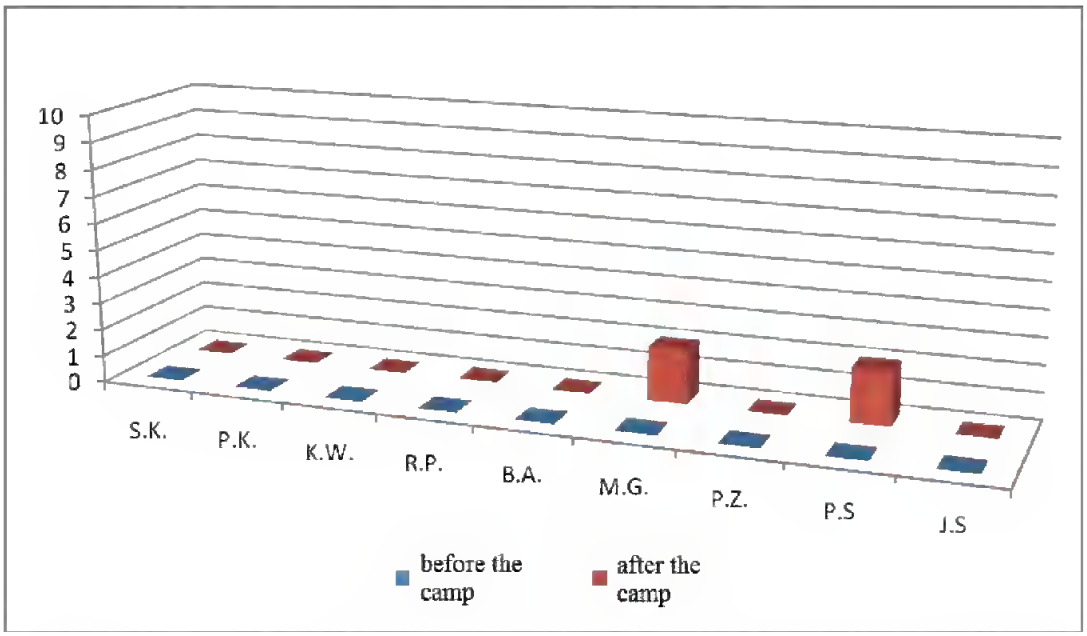

Fig.43. The level of underwater swimming style acquisition before and after the camp.

T=1,5 t=2,306 T<t

Statistical test showed that the change of ability to swim underwater is not statistically significant. Only 2 people with tetraplegia learnt to swim underwater during the FAR camp.

Another issue assessed at the FAR camp was the correlation between muscular force of people with tetraplegia and the level of change of ability to swim in different styles.

Table 2. Correlation of ASIA scale and the change of ability of swimming in different techniques

	ASIA scale
Water acqaintance	0,116248
"Eagle"	0
"Stork"	0,130795
Asymmetrical backstroke	0.533066
Breaststroke	0,583959
"A" crawl	0,077981
Underwater swimming	0,471586

Calculations of Pearson's correlation lead to the conclusion that muscular force correlates to the following swimming styles: asymmetrical backstroke, breaststroke and underwater swimming. The remaining swimming styles do not correlate to ASIA scale.

Discussion and conclusions

On the basis of literature survey it is stated that people after spinal cord injuries require a very intense rehabilitation in order to become self-reliant and to return to the social life. The Foundation for Active Rehabilitation gives such aid. It's aim is to rehabilitate people after spinal cord injuries through propagation of practising different types of sports. According to FAR assumptions (www.far.org.pl/statut.php; 2010) sport is the best method of psychophysical rehabilitation for physically disabled people. Bolach and Czajkowska (Bolach, Czajkowska 1997) after research of the group of people with paraplegia during Mistrzostwa Polski w Pływaniu Sportowym Inwalidów (Polish Paraolimpics in Swimming) state that: "before starting the training sport was considered as a form of rehabilitation. Practising sport influenced the improvement of many parameters of the examined people, such as: muscular force, movement range in joints and physical fitness." Pąchalski and associates (Pąchalski, Frańczuk, Wilk 2004) similarly notice that "sport prevents from secondary changes resulting from inactivity and it consolidates the results of basic treatment and enables compensations for disturbed psychophysical functions of the organism."

Swimming activities at FAR camps play an important role in rehabilitation of the disabled after spinal cord injuries. The instructors pay special attention to independent performance of basic activities before entering the swimming pool by the participants, such as: undressing, dressing, descending to and exiting the water, taking a shower, going to the lavatory. The results of the present research confirm that swimming activities positively influence the development of self-reliance of the participants while performing the activities mentioned above. The significant improvement concerns the group of people with tetraplegia. The majority of them learnt to perform the activities needed for independent enjoyment of a swimming pool. Similar results of research presents Bolach (Bolach 1996), who claims that

swimming improves efficiency of basic self-reliant activities by people with tetraplegia. Half of the group acquired or improved dressing and undressing. The analysis of results concerning self-reliance in the changing room before entering the water at the swimming pool allows to notice that a large group of participants is ready to go to swimming pools in their places of residence. Bolach, too has drawn similar conclusions in his research (Bolach 1996). Acquiring described skills enables disabled people to continue swimming training after the return from the camp to the place of residence. The main aim of the swimming activities was learning to swim in different styles. Each swimming technique was assessed by the instructors in the scale from 1 to 10. Marks were written in the FAR camp participant's cards. When the results were summed up it was clear that swimming activities develop the disabled's abilities to swim. In case of "Eagle","Stork" and symmetrical backstroke style of swimming, both groups of participants, with para- and tetraplegia visibly improved their abilities to swim in these styles. As far as asymmetrical backstroke, breaststroke and freestyle are concerned, the group of participants with paraplegia were better performers. It results from better functional abilities of people with paraplegia.

Moreover, all the participants gained significant water acquaintance. Owing to this ability these people would not be afraid of water sports in the future. Similar results were gained by Bolach during camps of active rehabilitation in the period of 1995 – 1996 (Bolach 1996). His conclusion was that a proper form of activities and constant presence of people securing the safety were the basic stimulus eliminating the fear of water.

Conclusions

The analysis of conducted assessment led to the formulation of the following conclusions:

1. Swimming activities carried out at FAR camps are an efficient method of rehabilitation and they significantly influence the development of swimming skills of people with spinal cord injuries. Camp participants are able to swim in different styles after completing the period of swimming activities.
2. Swimming activities proposed at FAR camps prepare people with spinal cord injuries to idependent performance of activities before entering the swimming pool.

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The social phenomenon of mountain bike[1]

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Key words: mountain bike, cycling, physical culture, contemporary sport

Abstract

The goal of the paper *The Social Phenomenon of Mountain Bike* is to make it a bit more familiar. Mountain bike is a relatively recent 'invention' but it turned out to be a very successful one. Nowadays it is commonly used by children and youngsters, as well as adults and older people. Some of us use it at work while others consider it an indispensable part of leisure activities. It is used in record-seeking sport and even, to some higher extent, in non- record-seeking sport. It may be used for achieving speed records, complicated acrobatics and rambling through deserts. Mountain bike races were quickly granted their World Championship. During the 2008 Olympic Games in Beijing the first Mountain Biking competition took place. Maja Wloszczowska won a silver medal for Poland.

Introduction

As there was once much noise about volleyball it also was about the road bikes, commonly called 'kolarzówki' in Poland. These days the most at-the-top sport disciplines are football, basketball and... mountain bikes. These bikes constitute the majority, probably the overwhelming one, of all bikes manufactured and sold in the world, nowadays. It may have been completely unbelievable ten or fifteen years ago that the mountain bike – a creation of some madcaps (not to say madmen, riding down steep mountain slopes headlong with their prototypes) – would rule the world. It may have also been completely incredible that it would become such a democratic vehicle that it would be ridden with equal passion by children, adults and people at the old age, women and men, the poor and the rich. It may have also been completely beyond one's imagination that those bicycles would contribute to creating a strong fashion, a lifestyle connected with an easy way to spend some free time. Depending on personal needs one can ride alone, enjoy a bunch of friends pedaling beside or feel the safety of a well-organized group of bike-riders.

[1] Primary print in Polish as: „Fenomen roweru górskiego". (2004). Sport Wyczynowy, 7-8, ss. 81-88.

Mountain bike

I believe that the mountain bike is one of those marvelous inventions which became revolutions in the contemporary lifestyle, making the world completely different. But what exactly is the mountain bike and what makes it so exceptional? This is a hybrid of once quite popular a multi-gear road bike, a child bike, a youngster highly damage-resistant BMX and a city bike. "The mountain bike is a combination of features of a few different types of other bikes. Its broad tires have deep-tread block design, providing the good adherence on sandy and muddy roads and at the same time they are light and they allow to reach the high pressure, which causes less rolling resistance to the other bikes (...). The handle-bar is so wide as it may be kept firmly and so flat (i.e. horizontal and straight as to make the quick and immediate access to the brakes. At the same time its design is ergonomic, so it does not make the biker take the body position which in the long run might seem uncomfortable" (van der Plast 1995).

The mountain bike is a vehicle of carefully considered, many times modified and constantly improved construction. It is highly resistant to the exploiting riding conditions. "The frame is damage-resistant but still light. The gears are easy to handle by use of latch index levers, installed at the handle-bar or under it. Using this bike it is not only easy to climb the steep mountain slopes but also ride off them down thanks to the proper construction geometry. There is no doubt that this is the triumph of the modern technology in the area of biking" (van der Plast 1995).

Almost every part of this bike is different to the ones seen in other bikes therefore, it 's become an easily recognizable type. Pedal brakes were replaced by various construction solutions of manual brakes. This was one of the first novelties. Pedal brakes were unable to match the requirements of headlong riding down the stone steep slopes. The brakes were occasionally smoking, whilst the lubricating oil seethed in roller-bearing and boiled away sizzling. The handles starting the contemporary brakes are placed right at the handle-bar and hands – in case of emergency – have an easy access to the brakes without having to stop gripping the handle-bar. During the whole process of braking it is not necessary to change the body position (the exception is braking by the body-balancing) and it is possible to watch the way in front of you and the surrounding area.

It works in a similar way with switching the transmission (the gears) the number of which varies from a few (the simplest models) to a few dozens (for the most advanced bikers the amount reaches even 28 gears) in contemporary mountain bikes. Changing the gears does not require the smallest effort. (In some previous models of road bikes changing the gears required bending down to the lever placed at the frame supporter). The changing gear levers in mountain bikes are placed either in the very handle-bar handles (they are kept in hand all the time), or are fastened to the handle-bar within the reach of both hands. In the latter, changing the gears is done easily with fingers, whilst seeing clearly which gear is currently on. It may be done thanks to the simplest brakes as well as the much better ones equipped with optical indicator. The more advanced solutions amongst brakes which are slowly becoming standards were taken from motor-bikes. They

comprise hydraulic shoe brakes and disk brakes. They are so effective that braking on the dry surface may cause almost immediate stopping right on the spot.

The bicycle frame has undergone the profound evolution. At the beginning the heavy, ponderous and clumsy mountain bikes were made of metal. Due to that fact they did not appeal to the riders for it was hard to move them. Then the producers started using chromium-molybdenum alloy followed by the light aluminum, impact-resistant and shock-absorbing composite, carbon fibers, titanium (the rare and exclusive stuff). Each of these constructions made it more sophisticated and made it – which is fundamental – much lighter. Some of the materials were used before in space technology.

To make the riding more effective and simultaneously to make the biker's effort smaller different types of pedals were used. There might be used an additional device – a very simple handle ("a small basket") we insert the foot in while riding. Even more sophisticated method is mini snap pedals (SPD) with which the special kind of shoes must be used. With those shoes we must clutch into the pedals and for the time of riding it makes a kind synchronized unity. At the beginning clutching out of the pedals is a bit hard as it must be made by a particular kind of round foot movement. That is why some people do not like this kind of solution. It is so mainly due to the heavy city road traffic and multiplicity of obstacles which require the biker to clutch out of the pedals frequently – unexperienced rider might face the risk of falling down.

The convenience of riding the mountain bikes was highly increased by using the front shock absorber and a bit later also the rear one. The high-quality shock absorber is frequently one the most expensive bike construction parts. Some bikers prefer riding the "rigid" (i.e. equipped with no shock absorber) bike. *De gustibus non disputandum est.* For the bikers' convenience the bike seats, filled with the liquid gel, are now being manufactured. The seat sags under the biker's weight. The intensely riding bikers use small openwork seats which make the unrestrained air circulation possible.

The shorts with hygroscopic insertion pads, which totally absorb the sweat, are also conducive to the biker's convenience and health. Their next advantage is that they are the additional protection layer thanks to which the many-hour biking is much more bearable. The professional biking shirts are transparent to wind. The fabric, they are made of, does not keep the moisture. It is the rule that at the back of the shirt there are a few pockets, in which some small objects handy during biking may be kept. Also the personal underwear (both the winter- and the summer-one) which is made of the non-moisture-absorbing fabric is available.

The professional, specially profiled aerodynamic helmets, made of thermohardening foam are becoming more and more popular. They contain ventilation holes (the more the better). To the helmet fastening binding straps placed under the chin, sometimes special protective insertion pads are added to protect the very vulnerable as well as impact and harm-sensitive chin. In the bicycle frame it is a rule that special holes are made to be used to mount the beverage-can handles, containing the isotonic beverage or, sometimes, there are

even two of them. There can also be found a mini bicycle-pump handle (it can be used for a few different valve types used in the air-chamber). A box containing most necessary tools and accessories pack, indispensable in the case of flat tire, may be attached under the bicycle seat. At the handle-bar there is also a free space for a bicycle warning bell, a front light and even (if somebody insisted, as it is rare to use it in mountain bikes) a mirror. At the back of the bicycle there can easily be installed particularly spectacular, many-algorithm pulsing, scarlet warning lights.

The more advanced level of biking and biker assumed risk, the larger the amount of all the protection utilities used. Amongst many states in the U. S. A. there is a requirement to publish only helmet-protected bikers pictures. While riding down the hard mountain area a bit difficult-to-use but secure knee- and elbow-protective pads are used (the similar ones are used by rollers). For the extreme, most dangerous ridings the special kind of helmets – very much motor-bikes alike – are used, which protect the whole biker's head, similarly to the ones used by the medieval knights. The similar functions are fulfilled by the rigid, especially hardened semi-armor, resembling the bullet-proof jacket but the small difference is that it protects even more of the biker's body surface. In summer in most cases the non-finger, leather, a bit rubber-containing protection gloves are worn. Whereas in winter, the special whole-palm protecting, heat-keeping ones are used.

The exceptionality of the mountain bike lies in the possibility to adjust its size and shape to the biker's physical build. The essential criteria considered are: the biker's height, weight and sex. Based on those, the proper geometry bike is selected. If the bicycle is well selected, and the handle-bar along with the bicycle seat properly set, then during the long-term biking the biker's hands as well as his legs do not get numb, the biking is optimally effective and the possible fall is less dangerous.

Riding the mountain bike is relatively simple and can be quickly commanded. It also comprises a few not previously known tricks. Among them are: the forced turning, consisting on a violent handle-bar movement; the turning arc shortening movement (cutting it diagonally). Along with the mountain bike the new riding mode was created and became popular: the standing mode. Thanks to it the steep mountain slopes became easy to reach with relatively small effort and that was nearly impossible before. This mode should be used while accelerating violently. Its impact for biking might be compared to the one, made by "flop mode jumping" at high jump or the powerful "foot-tapping" at javelin throw. And even the braking might be done not only the mechanical way but also by balancing with the whole body and moving the center of gravity backwards. This is especially useful in the case of necessity of abrupt braking in front of unexpected obstacle or losing the redundant and dangerous velocity while riding down the steep mountain slopes.

You can also ride the mountain bike in winter, in the snow as well as on ice. It is possible due to the different-patterned winter tires. Many keen bikers in the heavy winter circumstances use tires with special thorns (they work in a similar

way to the way car tires chains do– they enhance the adherence). Recently there appeared the air-chambers impossible to become flat (filled with some gel sealing the hole or holes-resistant insertion pads).

Another interesting device used almost commonly in mountain bikes is an electronic counter. They make numerous interesting calculations for the biker. They count the current speed, the covered distance, the average route speed, the maximum speed, the total length of the route and the more advanced ones – the differences in height, blood pressure etc. Occasionally there might be cordless counters applied, which is a great asset – especially when riding through the dense brushwood. They are not very successful though at road cycling (in a group of cyclists in a race), as they function at the same frequencies and therefore they "catch" the data from each other. For trainings in professional cycling the counters in feedback with the register machinery placed under the biker's shirt are used. They carefully register all the important body reactions e.g. heart functions. The bikers read them from the manual watch. After the training the data is transmitted to the computer which makes the data analysis possible and subsequently the training routine system might be modified. The competitor knowing how long he is able to ride "at apnea" might use this knowledge and successfully leave the group of cyclists in a race.

The whole of biker's equipment is completed by protection spectacles, which make the biker safe from sunrays and reflexes as well as from dust, flying insects and the moisture. They have the special insertion pads inside, which absorb the sweat running down the forehead. Similar insertion pads are placed in several areas inside the biking helmets. The better biking spectacles versions are equipped with UV rays filters and make the biking route lighter after dark. Special bicycle rucksacks are equipped with open-work, net-like pockets placed at the back and on both sides of a biker. They are easily reachable even during cycling. Those who are going to do the biking upon the virgin, secluded area may though equip their one-track vehicle to make it the solid means of transportation of both a biker and his equipment. In that case special saddlebags are installed at both wheels and on both sides. Bikers who enjoy comfort install their mountain bikes in special handles on the roof of the car. You can go for a trip with the your whole family this way as on the roof there is a free place for four bicycles. In camping trailers the bicycles are usually placed at the back of the trailer.

Nowadays the special mountain bike races are organized challenging the participants to win with the route which can be disastrous for them as well as their equipment. They go through mud, water, riding up and down the slopes, in the plain terrain as well as in the wood area, in the mountains and flat terrains. Also special kind of bicycle hermetic subculture was created – this is based on bicycles resembling slightly BMXs. It is dominated by three riding styles: regular biking, jumps and acrobatics. Acrobatics take place on specially developed parabolic ramps. Bicycles for acrobatics and jumps are of a bit different construction: their center of gravity is moved, the handle-bar may be moved around its axle (acrobatics), they got additional wheel supporters (jumping). The World

Championship in mountain biking are very spectacular and take advantage of its great popularity. It is similar to acrobatics show on the ramp and bicycle jumping.

In the ultra-modern hall-cycling competitions, during which the speed records are reached, ultra-modern solutions have been used. They include, among others, a futuristic-looking aerodynamic helmet. It resembles a falling water drop in the cross-section. Similar helmets are used by even faster ski downhill racers. In both disciplines what matters is fractions of seconds. At specially designed hall biker's shape the helmet is tightly adjusted to both the forehead and the back. Thanks to it the competitor's regular solid creates the monolithic hole. To decrease the air resistance even the hall sprinter bikers' shoes are aerodynamically designed. For the same purpose the special, developed in hall cycling, hand and arm supports are used. They reach a bit outside of the handle-bar forwards and at the same time they allow to rest the elbows comfortably and to keep the outstanding handle as a handle-bar. While being inclined this way the biker resembles the superman while flying horizontally. The elbow supports are very useful during the long outdoor races.

For those who because of their lifestyle can not afford bicycle joyrides, but would like to benefit from health advantages the bicycle with no doubt provides, such possibilities were developed. Many fitness-clubs and recreation centers are equipped with bicycle simulators. They are becoming standards and with pleasure are used by women. Such simulators are easy to be installed at home. The routine length, its level of difficulty (the pedaling resistance increases) as well as the velocity to which in that case one must get adjusted, may be programmed.

The mountain bikes have made revolutionary changes in the urban as well as suburban landscapes. Nowadays they can be bought almost everywhere. Hundreds (if not thousands) of them are awaiting the customers in hypermarkets. To buy the simplest model (but simultaneously not the most dependable one) a few hundreds zlotys might be enough. The mountain bike has changed the lifestyle and the way of spending leisure time like no other bicycle type before. The excursions with bikes like those are made by the whole school classes. Some people mount it on the roof of the car and go to secluded, remote places, and subsequently penetrate it thanks to the bicycle. Sport utility rentals in the popular resorts have bicycles as a standard offer.

Although the main character of the paper is called "a mountain bike" (due to its particular shape and construction), the bicycle is equally successful on the road as well as urban environment. Its value as a means of transportation can not be overestimated, indeed. In the crowded urban centers it is frequently a vehicle much faster than a car. That is why the city courier corporations which employ bikers have been established. They are more competitive than radio-taxi (if small-sized objects to deliver are concerned) as they can quickly reach all the places. Also telephone- as well as the Internet-ordered pizzas are being delivered by bike. For bikers special-labeled roads are being created, which is the requirement of the European Union. In the urban modification plans such roads are demanded. On the existing roads and streets efforts are made to create the bike areas somehow.

Conclusion

Around big cities there are specially-marked bicycle routes (often connected with the attractive natural environment, viewpoints or landscape parks). In summer roads like that are secured by biking police or by even more mobile horse police. Some cyclists introduce the fashion to ride the bike along with their dog – led on a loosely attached leash, running freely beside its owner. There are symptoms that the mass social phenomenon like mountain bike riding is a permanent one. The truth, though, is that we do not have the tradition to ride a bicycle so deeply rooted in our lives as Chinese people or the Dutch. However, the popularity of biking is continually growing. Especially after sports successes continually achieved in stunning style by Maja Włoszczowska as well as growing popularity of mass rides frequently organized by her in the south of Poland with MBT participants. It contributes to revitalization and additional increase in attractiveness of the region where the talented competitor lives (Jelenia Góra). Analogous to Wisla – home of popular and talented ski jumper – Adam Małysz. And that is by all means a very positive tendency.

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The values of recreational horseback riding

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Key words: axiology, modality, value typology, Max Scheler, horse riding, physical recreation.

Abstract

Horseback riding is one of the fastest developing physical activities in Poland which reflected in growing number of horse riding centers, individual horse owners and small private stables. The number of Poles who enjoy horseback riding as a way of spending their free time has also increased significantly. The literature does not provide us, however, with extensive explanation for such a situation. According to the authors of this text, one of the reasons is the set of values traditionally associated with horse riding. It even seems that in case of horse riding the share of values is relatively bigger than in other forms of physical activities. It results not only from equestrian traditions along with their cultural conditioning, but also from natural environment where horse riding takes place, where axiologically responsive relation between a man and an animal occurs. Classification and systematization done by Max Scheler remain the theoretical base for this work which enables the confrontation of axiological results with empirical material gathered. The research included the following values: absolute, spiritual (aesthetic, cognitive), vital, utilitarian, hedonistic. Maslow's hierarchy of needs complements Scheler's concept. The main objective of this work was to create systematics of the values associated with horse riding basing on professional literature, authors' own experience and that of other experts in the field. Once the systematics is done, it will allow future research on the values suggested by riders.

Introduction

On the turn of XX and XXI centuries, horse riding, especially the recreational form of it, has become more and more popular. More and more people ride horses in their free time at the premises of many newly opened horsey centres. Although in literature one can find case studies referring to recreational behaviour of horse riders or to reasons for them taking up horse riding as a pastime, it is difficult to encounter any case studies dealing with values of recreational horse riding. The concept of value from axiological point of view does not exist in horsey literature. We may come across a term "value", but it is used in its colloquial meaning. The authors of this text aim at filling this blank by creating systematics of values that

accompany horse riding. They seek to do so basing on professional literature and on their own and other horse riding experts' experience. Such systematic will allow to open a discussion on its form and to carry out research that would estimate the values suggested by horse riders.

Typology of values according to Max Scheler

Max Scheler belongs to the group of axiological objectivists and hence he perceives values as objective qualifications which are discovered by men in things. Values however, although discovered in things, are neither things themselves nor their features, nor psychological aspects of men. Values are simple and primal qualities and therefore cannot be defined. Jan Galarowicz who comments Scheler's ethics extensively writes: 'values are specific qualities that cannot be reduced to things' properties. Being ideal they decide on importance or rank of people, their acts, possessions, state of things etc'(Galarowicz 1997, p.79). Scheler ascribes values to the status of ideal beings but at the same time renounces any possible associations with Platonic idealism[1].

Scheler distinguishes five kinds of values also described as value modalities (*Wertmodalitäten*). Typology of the kinds of values corresponds to four levels of emotional life of a man described by Scheler: sensual, vital, mental and purely spiritual. The first educed modality refers to hedonist values (sometimes called hedonic or pleasurable). Sensual, hedonic values concentrate on the opposites: pleasant – unpleasant. They are connected with sensual sensations, the feeling of pleasure, pain and suffering. The second modality refers to utilitarian values which deal with the useful and the harmful. It should be mentioned here that the latter one is sometimes omitted by Scheler. The third modality refers to vital values which concentrate on the opposites: noble – ordinary. Vital values manifest themselves in feelings of bravery and paltriness, health and illness, power and weakness, ascents and decays of stamina and they are all connected with maintaining life and health, in both physical and mental aspects. Scheler characterizes this modality in the following way: 'All values of this modality – if they are values in themselves – are the qualities which deal with the opposites of «what is noble» and «what is vulgar» [or maybe «what is good» in the very specific meaning of the expression where it equals to «what is suitable» (das Tüchtige) and does not oppose to «what is evil» (das Böse), but to «what is unsuitable» (das Schlechte)](Scheler 1967, p.1539). The fourth modality refers to spiritual values that are sometimes referred to as cultural ones. According to Scheler spiritual values include also aesthetic ones that focus on opposites such as

[1] "Right on a threshold of philosophy – Scheler writes – I have to reject any heaven of ideas and values, that exist absolutely «independently» of nature and possible accomplishment of living spiritual acts, «independently» not only of man and his awareness, but also of nature and creation of any animated spirit at all." M. Scheler, *Der Formalismus,in der Ethik und die materiale Wertethik*, Bern 1966, p. 21.

beauty and unsightliness, values of "pure knowledge cognition" as well as values of legal order that focus on opposites: right – wrong, honourable – dishonourable, just – unjust. The fifth and last group refers to holy (religious) values.

Max Scheler's typology of values is a part of his theory of values hierarchy. The position each value holds is a part of his theory of values hierarchy and according to Scheler it depends on acts of sense perception and on preferences seen as emotional-cognitive acts that are connected with certain commitments. Values are available for us through emotional acts which allow us to capture their specific character and their mutual relations. Scheler points out five criteria of values' rank recognition. The first one is their constancy. The longer constancy in time is, the higher value it indicates. For Scheler, however, constancy of value is not tantamount to constancy of existence of its bearer (the value of a sculpture does not depend on the durability of the material it is made of). Scheler stresses that lowest values are the most "evanescent" in character while highest values play part in eternity. The second criterion in values' rank is scope. The higher the value, the less dividable it is and hence spiritual values have the advantage over material ones. The third criterion refers to the so called "value foundation". Values require vital foundation and thus for example bread is the ontic foundation for nutritivity. The bigger foundation it provides for other values, the higher the value becomes. Therefore, a vital value that provides foundation for an utilitarian value is superior to it. It stays in line with somehow natural ethical intuition of a man; it is clear for anybody that owning some assets (utilitarian value) does not matter any longer if one faces fatal disease (vital value). "Who – being also really unhappy – could possibly envy a paralytic his "exhilaration?" (Scheler 1967, p.1527). The fourth criterion is called by Scheler a „depth of satisfaction". The deeper the satisfaction resulting from the value implementation, the higher the value. Scheler stresses that depth of satisfaction has nothing in common with pleasure, however pleasure can be a result of a depth that one experiences. "The pleasure we experience because we feel the value is called «a deeper one» than others only when its existence (*Dasein*) appears to be independent on feeling other value and «pleasure» connected with it" (Scheler 1967, p.1528). Insignificant and inconspicuous pleasures that we feel while walking or having fun with friends can serve as an example of such a situation. Such pleasures may be a source of satisfaction, but only when we feel satisfied in "a more central", as Scheler says, realm of our life. The last fifth criterion attributes the value's rank to its absoluteness. The more constant and accessible values are, the higher they appear to be. Values also appear to be higher when deeper satisfaction is felt while implementing them and the less they serve as foundation for other values.

Unlike other axiological concepts, Max Scheler's typology of values is not laden with specialist axiological terminology, nor with their ontological or ideological deciding. Although Scheler adopts an objective and normative character of values (values are binding), he does not forejudge their vital status. Scheler does not impose any definition of a value as it is, or of any particular kinds or modalities of values. Instead, he distinguishes and presents us with certain

centres where values evolve. This makes his proposal open to empiric dimension of human preferences and choices. Although for Max Scheler kinds of values create hierarchy, a respondent does not sense its normative presence, does not have the feeling of being obliged to come up to expectations. Having in mind the subject-matter of this research, one must realize two issues: firstly, we may suspect that horseback riding is a form of fulfilling one's passion and interest. Scheler's axiology does not depreciate the emotional dimension but just on the contrary – it assumes that emotional acts (feelings, preferences) allow us to recognize values. Unlike with other value typologies, Scheler recognizes the existence of vital values and at the same time he differentiates them from hedonic or utilitarian values. Simultaneously, his concept of vital values allows to include a widely understood physical culture, health promotion and ecology. Without reducing vital values to hedonic values, Scheler perceives their autonomy and grants them an important position in value hierarchy. Scheler aims at preserving *modus vivendi* between a concept of values permanence and historical and local transience of individual ethoses and axiological consciousness. Taking Max Scheler's terminological rules into consideration, we can ask questions about group or ambient ethos, typical of horseback riders, we can examine the integrity of this environment and communication range of its members as far as values and preferences are concerned.

Values of recreational horseback riding

Recreational horse riding cannot be identified with equestrian sports. It does not require from an amateur rider to gain the highest level of his physical or technical possibilities, it does not use palfreys of particular breed, having specific sporting features, it does not include competition in the first place (Grobelny, Jasiński 1997). On the opposite, recreational horse riding concentrates on pleasure, rest, regeneration of psychophysical powers, on having contact with another living organism (Suchorski 1977). It is also treated as means of improving, retaining and recovering one's physical agility.

There are not too many forms of physical activities that managed to gather people that can be characterised by unique interpersonal behaviours, adopted system of values, attaching importance to tradition, but also by individuality, hermetic and maybe a little bit snobbish. That exactly what can be said of horse lovers, a group that gathers people who treat both horses and horse riding emotionally, as a source of satisfaction and fun (Grobelny, Jasiński 1997). These people have oftentimes similar interests, but different horsey experience and come from various social and age groups. It must be stressed here that multigenerational character of horse riding results from the fact that horses can be ridden by 5-year-olds and 105-year-olds alike. In literature its often referred to as "a sport of the whole life". Jerzy Urbankiewicz (the author of many books on horse riding) or Michał Gutowski – both of them being officers in pre-war cavalry, still rode their horses at the age of over 80. An important phenomenon that can be observed among horse riders, is growing "feminism" in this environment – especially in the

recreational horse riding. According to many case studies, the proportion of sexes in horse riding is 75% of women and 25% of men. Undoubtedly, one of the advantages of horse riding is the fact that the whole family can participate (Grobelny, Jasiński 1997, Grobelny 1997, Wyżnikiewicz-Nawracala 1997, Grobelny 1999, Grobelny, Barska 2004, Barska, Grobelny 2004). In conclusion it must be said that recreational horse riding "is practiced mainly in the company of other people – friends and relatives, and it becomes a way of meeting people and integrating horsey groups" (Grobelny 2000, p. 189). According to Wyżnikiewicz-Nawracala (1995) there are three elements involved in the process of recreational horse riding: a horse, a man and environment (both natural and anthropogenic). Therefore, it is the next value in horse riding which answers modern needs for recreation for those who seek active forms of spending time in natural environment, that at the same time allow complete psychophysical relaxation (Grobelny 1998). Most of horsey centres are localized outside cities (in the suburban and touristic areas) and thanks to that going "horse riding" serves as the opportunity to rest form big city noise and pollution (Wyżnikiewicz-Nawracala 1997). There are many authors who stress the importance of natural environment in the process of physical recreation (e.g. Deja 1991, Riedl 1983). Łobożewicz (1993) writes that a postulate of most often contacts with nature has become indispensable for surviving. Various forms of open air horse riding, such as tourist rally, horsey mountain trekking or just short ride can provide us with possibility of adventure or even more extreme experience (Gaszyńska 1987; Grange and others 1997; Grobelny 2007; Krzemień 2002). Direct contact with nature in places that cannot be reached by car, spiced up by galloping or jumping over felled trees leave unforgettable impressions which motivate us to improve our skills. Besides, we feel free and untrammelled by any limitations (Grobelny 1997). Riding a horse requires some knowledge and skills form the rider (Wyżnikiewicz-Nawracala 1997, Suchorski 1977, Werpechowska, Kotowski 1987). Knowledge of horses was inseparably connected with being a patrician, a typical role model (Ginkowa 1986). The situation has remained similar nowadays, although the scope of knowledge is hard to define as it largely depends on the riders' expectations. Those interested in riding only do not explore depths of hippology. But full contact with a horse is not possible without the knowledge of its behaviour. At present natural methods of training horses are in fashion, which is justified as they derive from western style, which accentuates cooperation with a horse itself (Miller 2009; Andrzejewski 2001).

Horse riding can be practiced all year long (Wyżnikiewicz-Nawracala 1997) especially nowadays, with many indoor riding arenas. Bogucki (1998) describes recreational horse riding as weekend and holiday activity. Such an opinion is quite questionable as research carried by Grobelny (1999) among 939 riders of Lower Silesia region shows that over a half of them (54,5%) rides their horses on weekdays. Other research of the same author (2000), which was carried among 371 inhabitants of Wrocław who ride horses recreationally shows that nearly 70% of them ride their horses in the middle of the week. Horse riding is

often described as selective. Most often these associations are not positive. Indeed, in the prewar period horse riding was practiced by elites mainly but nowadays it is available to anyone. Apparently though, as although financial barrier does not exist anymore, there seems to emerge a new limitation connected with possessing some features of character necessary for horse riding. Nowadays, we can openly call horse rider a personality elite (Grobelny 1997). The educative aspect of horse riding, as well as the role of riding instructor who is perceived as the educator are often stresses in many works (Grobelny 1993, Grobelny 1997). It is emphasized that riders need to be accountable for the horses, punctual, tidy, active in seeking knowledge, able to overcome difficulties and they should be team-players. Riders' behaviour should be represented by ethical – responsible and respectable – treatment of horses as partners in a process of recreation (Grobelny 2009). It happens very often that we are reluctant to ride horses or to ride them in some specific conditions (e.g. in the open air) because we are afraid of a horse, of being bitten or kicked by a horse or of falling off. If we are taught how to ride properly, if we are prepared to get into contact with a horse e.g. during preparations for riding, then there is a chance to overcome our fear of a horse (Grobelny 1997). Recreational horse riding that derives from the utilitarian – using horses in army, for transportation, for hunting, over the years has created many traditions that are still being cultivated nowadays. St. Hubertus race (3rd November) which marks the end of riding season is the best example of such a tradition. Such customs are connected with historic traditions of cavalry and knights. Our specific horsey traditions are described in numerous works e.g. Grabowski (1982), Pruski (1982) or Urbankiewicz (1996).

Following Ginkowa (1986, p. 32, 33) Wójcicki wrote that "a horse holds an important position in the image of Poland of ages gone by" and he continued stressing that " next to God, the land, the nest with his wife and his children a Pole had nothing dearest but his horse". The world-wide achievements of cavalry in mid-war period (Łysakowska 2000), the famous charges of Polish horsey divisions in Europe and around the world are still present in minds of numerous Poles and for many of them their contacts with horses results from the soft spot they have for their past. Also, for a number of them horse riding is associated with a so called "cavalry loftiness", a term which is brought back by Wyżnikiewicz-Nawracała (1997).

No doubt horse riding provides many health benefits which were already appreciated by, among others, Hippocrates in ancient Greece (Wyżnikiewicz-Nawracala 1997). Horse riding positively influences some aspects of faulty postures, automatic nervous and circulatory systems disorders. It plays an important role in prophylaxis and treatment of civilisation diseases, such as obesity, neurosis, circulatory diseases (Gless 1984, Mrozkowiak 1985).

Grobelny (1997, p. 116) writes, that "in Greek, Persian, Celtic or Galician beliefs, a horse was attributed to many gods, who were often presented on a horseback or in a chariot". Scyths worshiped the god of sun in the shape of a horse, Greeks had Demeter and the Persian people believed horses were oracle (Ginkowa,

1986). Łojek (1985) emphasizes the importance of horses among the Slavic peoples, where they were used for foretelling but also they were sacrificed to gods. Urbankiewicz (1996, p.8) quotes a description of biographers from the beginning of XII century, referring to a horse – fortune-teller: "there was a horse in Szczecin, black, huge, fat and chirpy. It did nothing all year long, and was worshipped to such an extent that no one was allowed to ride it. Before any armed battles, the horse was used for telling fortunes". In history, Arabian horses were of great significance, as they were supposed to origin from the five mares of Mohammed. The prophet said: "if one may not discharge his powers and duties, one shall keep a horse for God, and he may expect remission of all his sins" (Kamiński,1982, p.15).

For many years horses were the subject-matter of artistic accomplishments and according to Kamiński (1982) they dominated a history of art. It is also mentioned by Wyżnikiewicz-Nawracała (1997). Horses and horse riding play an important role in Polish literature, poetry, sculptures and painting. The examples can be found in horse-related works, among others in Ginkowa (1986), Zagórska-Czarnecka (1989), Morka (1986) or Kamiński (1982). Słowacki, Mickiewicz, Krasiński, Norwid and many other devoted strophes or even the whole works to horses. Masterpieces of famous Polish painters such as Kossak, Kossak, Michalowski, Gierymski, Chelmoński pictured mainly horses. Suchorski (1977) describes horse riding as a kind of art, and a rider as an actor. Maybe nowadays it would be more appropriate to call him a director?

Ginkowa (1986) emphasizes that the beauty of horses very often becomes a topic of literature. But it does not refer to external appearance only – the title of her book "A Horse Has a Soul Inside" indicates the inner depths of horses. Romantic artists claimed that the inner depth allows horses to have metaphysical contact with their riders. Nowadays this romantic theory has a chance to come true thanks to natural methods of horse trainings. A horse tack is complementary to a beautiful and wise horse. In the past it was lavishly embellished with precious stones and embroidery and it stressed the importance and wealth of a rider. Ginkowa (1986) describes the entrance of Polish horsey retinue arriving at king's manor in Paris to collect Marie Louise Gonzaga de Nevers (who later became king Władyslaw IV wife). The horse shoes were embellished with silver and gold and fixed in such a way, so they got lost, proving the wealth of riders and instill envy in everybody.

Nowadays a horse tack is more practical, although western saddles still happen to be embellished with silver, and leather ornaments are hand-made (which makes such tacks really expensive). As tacks need to be practical, riders compensate for that with horse riding fashion – designs and colours of accessories such as shabracks, overgrips, protectors or blankets. The riding clothes fashion undergoes fast changes.

A horse has become "a symbol of social status and a kind of personality trait of its owner" (Kamiński 1982, p. 20). Exactly the same way as it was in the past years, still now rider are driven by urge to impress others and to be admired, which they reluctantly admit.

Systematics of values in recreational horseback riding on the basis of Max Scheler's typology

Having all the above in mind, the authors undertook to create systematic of recreational horse riding values.

Hedonistic Values
possibility to impress others
pleasure resulting from horse riding
pleasure resulting from taking care of a horse
escaping big city life

Utilitarian Values
belonging to the environment of horse lovers
possibility to meet people of the same interests
possibility to gain new skills
possibility to practice horse riding together with family
possibility to make acquaintance with people from different age groups (multigenerational character)
possibility of practicing horse riding all year long
spending time outdoors

Vital Values
building up one's prestige
possibility to overcome fear of horses
possibility (necessity) of self-improvement
controlling the animal
overcoming one's limitations
feeling free (e.g. while galloping)
restoring one's fitness
improving one's fitness
resting, regeneration of psychophysical powers
contact with nature
improving one's personality
adventurous character of horse riding (during trips, rides etc.)
horse riding as means of taking care of one's health
horse riding is " a sport for the whole life" (it can be practiced by 5-year olds and 105-year olds alike)

Aesthetic Values
beauty of a horse
beauty of apparel
aesthetics of a horse tack
following horse riding fashion (blankets, shabracks, overgrips, protectors)
admiring landscape
improving one's physical attractiveness
horse riding and a horse are topic of works of art (poetry, paintings etc.)

Cognitive Values
getting to know horses' psychic, behavior

getting to know oneself (discovering weaknesses and strengths of one's personality)

Legal Order Values

continuity of family riding traditions

possibility to sustain national historic traditions (of knights and of cavalry)

Holy Values

horse riding as a source of spiritual, mystic experience

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Himalaya climbing as a form of physical activity – theoretical dissertation

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Keywords: Himalaya climbing, Alpine climbing, physical activities

Abstract

Himalaya climbing, most refined form of mountaineering, has a long history, however, it seems to be a hard job to specify explicitly the idea and motivation behind human adventure in the highest mountains. Initially, climbers were exclusively focused on reaching successive highest summits. Soon a man would start to take up more ambitious tasks to mark out new routes or face most severe weather conditions of Himalayan winter. Heated disputes on the sense of taking grave risk in the mountains flared up. The following question arouse – should Himalayan climbing be perceived as sports activity? Many find climbing a peculiar sports discipline where mountaineers compete a long way from stadiums or cheering crowds, where results are hardly measurable in centimetres, where there are no winners or loosers. Like in any other sports disciplines competition is involved; there it means struggling to achieve goals or fighting one's own weaknesses and fears rather than an opponent. However, there are few ready to sacrifice or willing to take on such a challenge. Climbers' specific imagination as well as their life philosophy should be discussed from multidimensional perspective. They perceive mountains as their way of life, source of most beautiful and refined emotions as well as the stage for a test of character. What they look for in the mountains – the place with no boundaries – is freedom. Is it a sports discipline, or rather a form of tourist activity? This qualified, extreme and adventurous activity provides climbers with an opportunity to pursue interest which often turn out to be their life passion. Taking into consideration complex character of Himalayan climbing, the paper makes an attempt to discuss its nature and its place in the wide realm of contemporary physical activity.

Introduction

Mountains have attracted people for years. From the dawn of history perceived as residence of gods, mysterious forces and mystical values, they induced in people a variety of positive and negative emotions as a consequence of which it was a mixture of distance and fear entwined with admiration and charm. Entering them, a man looked for new and so far unknown. He wanted to watch

them and at the same time ascertain them more acutely. He conquered them step by step, first looking for ores, places for pastures, shelter from responsibility or finally for their natural beauty. He "absorbed" them systematically breaking existing myths and stereotypes, however was doing it with respect for their huge strength and power. Man's activity in the mountains evolved gradually. Once occasional expeditions of the „daredevils" in time changed into organised trips thus leading to mass tourism. However for many mountain tourism stopped to be a challenge any more. The era of Alperstein tourism, and in its further development alpinism and the highest form which is himalayism occurred much earlier than it could be expected. Man's presence in the mountains became a fact though the motives for the undertaken trekking were very different. A changing lifestyle of people which essentially influences nature of relaxation has also been reflected in mountain behaviours. Such motives as craving for active time in the mountains, rest from toils of everyday life, pleasure coming from the very wander, beauty of the mountains with their clean and natural environment or simply a will to experience an adventure represent an actual quintessence of their needs (Zarzycki 2006).

However, for a certain group of people, without defining their number, they have become a way of living, despite the dangers which always accompany them. Changeable, difficult and at the same time severe weather conditions, high altitude bringing with it acclimatization problems, permanently changing terrain configuration on glacier, a number of unpredictable organisational problems during a trip and also overcoming one's own physical and mental weaknesses, are still a challenge with which a man copes systematically. A question about a sense of taking such a risk in an uneven fight with the power of the mountains has been asked many times. An essence of alpinism has been searched, particularly after great tragedies which brought about a wave of criticism from the public unable to understand people taking such challenges. However a polemic started in such moments never led to understanding of this phenomenon which in its complexity still remains unanswered, and a consensus between its supporters and opponents is unachievable. It seems that the expression of one of the most excellent alpinists of the interwar era George Leigh Mallory who answering the question about a sense of climbing and an attempt to gain Mount Everest said: „because it exists" (Malanowski 1990 s.82) is the nearest and the phrase has become a part of the history of alpinism. Do the words enable us to explain a sense of undertaking also himalayism? Certainly not, therefore there have been attempts to approximate this phenomenon in theoretical dimension with its positioning in physical culture.

1. Himalayism and its significance among „great himalayists"

Considerations over himalayism are closely related to alpinism as a superior semantic form occurring in professional literature. According to its common understanding, alpinism is a form of activity practiced in high mountains originating from mountain tourism and consisting in climbing mountain peaks frequently overcoming serious difficulties of the area and with help of climbing

techniques during which specialist equipment is used. It is also considered the highest form of high mountain tourism or sport.

In the initial period of alpinism the peaks were conquered via the easiest routes, then on more difficult walls, piers and other eminent formations. Further stages cover looking for difficulties, marking out new routes through the most difficult fragments, tower rocks, leading directly along the line of the slope decline so called dirretissime. For years alpinism has continuously evolved and developed therefore today we can distinguish many of its forms:

- Extreme alpinism (sport) – negotiating the most difficult routes (ways) in a given period of time
- Women's alpinism – practiced by women, in mixed teams or independent female teams (from the sportive point of view appreciated much higher)
- Exploration alpinism – looking for trackless mountain ranges, peaks, walls and their fragments and making first entries and negotiations
- Expedition alpinism (exotic) – entries and trekking in the mountains void of tourist infrastructure
- Altitude alpinism – entries on peaks over 7000m
- Cave alpinism – climbing and exploration activity in caves
- Skiing alpinism (often called ski alpinism) entries on peaks and cols, and then going down skiing
- Guided alpinism – during trekking alpinists are guided by a paid guide
- Summer alpinism – entries on peaks and negotiations in a summer season for the given mountains
- Winter alpinism – entries on peaks and making negotiations in winter season for given routes (Kielkowski, Kielkowska 2003).

When trackless colossuses and ambitious targets in the nearest surrounding of Europe ran out, new challenges were searched outside its territory. Together with exploration of the world and higher and higher mountains, alpinism started to evolve until its highest form practiced in the Himalaya, the Karakorum and other mountains of High Asia. At present the notion is also applied to other mountains of the world located outside Asia whose peaks exceed the altitude of 5000 m ASL (Jouty, Odier 2007).

So it may be assumed that himalayism is a derivative of alpinism which is characteristic for certain mountain regions. Examples of such notions could be the Andes mountaineering or the Pyrenees mountaineering.

Specifics of himalayism is similar to alpinism. However, in its case acclimatization problems seem to be much more serious. Extreme weather conditions in many cases put paid to toil of climbing. Problems resulting from length of climbing routes and carrying out actions in regions distant from inhabited places and hence necessity of applying appropriate tactics and styles intensify toils of climbers. With regard to the latter ones the following styles of conquering peaks are distinguished: expedition, alpine, capsule or simply solo style. However it should be remembered that the forms aforementioned in the description of alpinism

can also be distinguished in himalayism, the example could be summer and winter entries which are very specific in this form of activity.

For many years a question about a sense of himalayism has been asked. The most eminent Polish himalayist Jerzy Kukuczka thought that alpinists did not climb the mountain peaks to prove anything to anybody. Persons who cope with the giants of the Himalaya, the Alps and the Andes do it for themselves and for something completely different than mere fame or result by many defined as sport result (Jouty, Odier 2007).

For Wanda Rutkiewicz, the himalayist of the Polish and world fame alpinism had five very essential aspects. The first one was the very climbing bringing emotions and inducing sport competition. The mountains, nature, a possibility of absorbing their beauty is the second aspect. The third one was observation and participation in fascinating relations between people who practice alpinism. Very often these are great personalities and staying with them is inspiring and motivating. The fourth one is a need for risk and experiencing fear, and the fifth one is creation (Jouty, Odier 2007).

For another Polish himalayist - Wojciech Kurtyka - alpinism has become a way of living. Full of spiritual and physical extremes, demanding from a man as much as maybe no other field of human activity. It became an aim for self-improvement through continuous experiencing of the most difficult trials (Jouty, Odier 2007). For Kurtyka alpinism is „not a sport, but a religious action, it enables one to be subjected to trial and serves improvement of one's character, is a way of experiencing – in a short and concentrated manner – extreme forms of human feelings; extraordinary joy out of the fact that one is alive and horror of meeting with death which enables you to look into the basic truth of life." (O'Connel 1997 s. 169).

The evidence of reformation in the Polish alpinism was the charges of Kurtyka who did not accept changes occurring in this respect. Therefore he indicated to the alpine environment that up to a certain moment climbing had been treated as competition, but the subject of the competition and desire was adventure. Whereas in the recent years a strictly sportive competition has taken over.

The essence of alpinism and himalayism is expressed also in the words of other people for whom the very activity became a way of life. Andrzej Zawada, pioneer of the Polish himalayism thought that one should be active in life, but at the same time he/she should take responsibility for one's interests. He also translated it into sport where he thought that it is good but only if a man practices sport and is fully responsible for that (Matuszewska 2003).

The essence of alpinism was caught in words by one of the best post-war generation alpinists who started a new era in extreme climbing. Walter Bonatti stated that „the essence of alpinism is first of all that it opens to a man a battlefield and possibilities of overcoming one's own weakness, toughens one's spirit and enables a man to experience joy of being in an ideal wonderful surrounding of the mountains. The primitive of existence, sacrifices, toil and inconvenience, inherently related to conquering peaks, become – for the same reason – important

trials which an alpinist accepts to be able to develop his/her inner strength and character. In the atmosphere of fight, necessity of coping with still unknown challenges and thousands of dangers which are waiting in the mountains, a climber stands, unmercifully bared in his own and others' eyes, forced to reveal all his virtues and vices. And it is an obvious prove that for an alpinist the mountains may be a source of the most beautiful and most winged experiences but also the highest trial enabling him to improve the features without which there is no development." (O'Connel 1997 s.84).

From the above mentioned opinions it seems clear that each embodiment of alpinism is not unambiguously a sport, but a selfless form of activity of a sportive nature, differing from other (such) forms. Motives for practicing alpinism may be various – feat, social contacts, adventure, mere need to move, experiencing nature or simply a will to live in nature. It's the alpinist who decides upon a motive. Therefore alpinism may be considered a special „sport" because of variety of motives for practicing it. (Malanowski 1990).

More importantly, without a great motivation and consequent training, there is no achievement in any sport, and in alpinism above all. However such motivation must be wise, void of illusions and sick ambitions, and supported with experience, equipment, acclimatization and skills. In alpinism, every previous experience and skills which may result in a proper reaction and approach enabling an alpinist to save his life when facing a threat, is priceless.

There exist beautiful idealistic watchwords which still prove purity of alpinism and himalayism which clean it from brutal and subjective values. As Walter Bonatti claims: „mountains are means, the aim is a man. It is not about entering the peak. It is done to become someone better" (O'Connel 1997 s. 93)

For many alpinists, for whom mountains are a way of life beautiful values still count, not just success in sport. So it may be assumed that himalayism is a multidimensional activity enabling one to express his personality physically, mentally, emotionally and spiritually in the possibly fullest extent.

2. Himalayism in physical culture

Motion is an essence of existence for a man. It has a great value as it is not only a way of locomotion necessary in everyday functioning of a man, but also represents a useful value. The notion covering "motion" is physical fitness which comprises not only a set of acquired motion exercises, but also a level of capacity of all organs and systems, motor abilities (strength, staying power, speed and co-ordination), and also certain elements of active life. Efficiency of acting of individual physiological functions of organisms, and in particular a way of processing energy and an ability of sufficient adjustment to changeable surrounding conditions, have primary significance (Osiński 2000). Since a man realised a superior value of motion activity, he has undertaken actions aiming at maintaining an organism in a status of readiness to take up any physical activity as long as possible. Caring about mental-physical status of health has become a supreme directive of each man. To ensure completion of such a motto it is

necessary to understand an essence and value of the phenomenon commonly called physical culture. Despite the fact that it is a fluent and ambiguous notion one can separate basic aspects of physical culture as a specific field of culture. It may be analysed in four aspects.

1. Physical culture is an aggregate of material environment shaped by a man according to his possibilities, needs and values. Thanks to that it has a specific human dimension and does not exist outside the man's world. It is an integral part and represents the basis of any culture. In this notion of physical culture there comprises both the world of "humanised nature" as well as so called material culture which is „artificial" surrounding created by a man and influencing reflexively his way of living.
2. Physical culture is a system of values, actions and their effects in the field of body activity of a man depending on external conditions and stimulated by social needs. Physical culture perceived this way is both physical work and any other behaviours aiming at improving health, fitness and body expression. Forms and contents of such actions are various and dependent on type of society, status of its development and system of meanings and symbols. So they are socially determined and have social functions.
3. Physical culture is a complex of motion activity of a man taken in an aware manner and deliberately for multiplying health, developing physical activity and multiplying a man's good looks subordinated to a pattern of comprehensive harmonious and dynamic personality. Creation and recreation of a body has in this sense a character supplementing rather compared to other socializing and educative influences on an individual.
4. Physical culture as a synonym of sport occurs only sporadically both in Poland and in other countries of Central and Eastern Europe. Identification of physical culture and sport occurs as a rule in western literature (Krawczyk 1997).

In reference to the above aspects one may assume a definition that physical culture is a relatively integrated and fixed system of behaviours in the field of caring about physical development, motion fitness, health, good looks, body perfection and a man's expression, functioning according to patterns assumed in a given collectiveness (group) and also results of these behaviours. Moreover physical culture may be considered in categories of values where a fundamental characteristic feature is its autotelism. So it seems to be a set of values representing an aim in itself and so performed for themselves. Participation in physical culture perceived this way is most frequently taken up for hedonistic intentions. So it cannot stand compulsion and is a form of spontaneous and free experiences. (Krawczyk 1997).

Nowadays indicators of physical culture are its four pillars, which include health education, physical education, sport and physical recreation.

Motion and physical activity represent the basis of culture which is to influence health understood as physical, mental and social well-being and so a bit

more than only an antonym of illness (according to the definition of World Health Organisation). However it is an individual issue as the price of life and health is set by everyone individually. It is a changeable value as the "price" of health increases as its resources diminish and ranges when life and health compete with other values particularly when they get into a drastic conflict with them, as in the event of taking "deeds" with the highest level of risk as for instance alpinism. Extreme experiences such as loss of health or even life may be related with it. Persons taking up the risk are aware as they themselves notice "negative" essence of alpinism in it. As one of the Polish himalayists thinks "the essence of alpinism is risk which cannot be eliminated." (Lwow 1990 s.93).

Good health condition is the basis to go into the high mountains as „indeed – no one will help anybody in the mountains. No one will carry down an exhausted friend. One can only motivate the other person to force him/her to reach for the reserves, he may create, maybe illusive, feeling of safety, return faith in one's own strength, encourage to further effort" (Rutkiewicz 1986 s.63).

Educational derivative of physical culture, in a straight line, is physical education. Whereas health education originates from health culture which is one-value therefore its derivative that is health education will be the same. So it may be assumed a guard in the form of hygiene of physical education. Health culture, and also health education, covers all planes of health: somatic, mental and social plane. So health education reaches in such regions as problems of life and death, tragic of threats, co-existence of man and nature. So these values and features maybe searched in alpinism and the whole mountain activity. Alpinists in their activity encounter the problem of life and death, as practicing alpinism satisfies a specific need to look behind the limits of death at the same time saving one's life. In alpinism a man indicates one's own limits towards the power of mountains. He discovers majority of barriers and fears which seem only as a handicap of human mind behind which there starts real freedom. Since a certain moment alpinism has started to be an experience of more and more numerous group of amateurs who unfortunately caused majority of accidents in the mountains. A question of the sense of exposing one's life by wandering into hostile and severe regions was asked then. It was asked what made alpinists take a risk of climbing on inaccessible extremely difficult vertical rock walls. Public opinion many times made accusations towards climbers that the existence of alpinism or himalayism is not sufficiently justified in practical sense and should not expose life for so hardly utilitarian purposes (Kurczab 2008).

Uniqueness of physical education compared to other forms of participation in physical culture such as physical recreation, sport, motion rehabilitation consists in its dual role. Firstly it satisfies extemporaneous needs with regard to physical development, and secondly serves preparation to care about one's body after finishing an educational process. Therefore it's the physical education of the youth on which the level of physical culture of the adults depends as its dimension is among others a scope of social participation in its various forms. Also in the event of a component of physical culture it is possible to find analogy with alpinism and

himalayism. Before a man reaches these highest forms of activity in the mountains, he gradually goes through all steps of mystery starting from spontaneous mountain trips, and ending on the activity in the highest mountains and in the most difficult conditions. All these stages are usually gone through in one's youth to grow up and at a certain age make a decision on practicing alpinism in the purest meaning of the word. Not all however undergo subsequent stages of the process. Many do not start the risk and ends their education at the level of qualified tourism, however they transfer their knowledge and obtained experience to their children or they are an authority to others. Therefore it may be assumed that usually in such education there participate all generations and transfer of knowledge and skills is done through influencing a pupil intellectual and fitness realm. Shaping attitudes and motivation is a result of influencing an emotional-volitional realm.

The next pillar of physical culture is sport. In scientific literature a complex nature of sport as a social phenomenon is stressed. Connection between sport and health, hygiene, physical fitness, education of young generation has been indicated for a long time. However looking for specifity of sport or taking up an attempt of its defining scientists usually located it in the realm of entertainment. As sport behaviours are motion non-productive activities characterised with competition and aiming at achieving maximal measurable result.

The next issue regarding sport is its nature which by scientists is distinguished as amateur and professional issue. Fixing and moral sanctioning of this division, separated according to the criterion of selflessness, is related to development of Olympic movement, which at the same time unintentionally and spontaneously speeds up the rate of professionalizing sport.

For many years a question whether sport is a right notion for what people are doing in the highest mountains has been asked. First winter entries, new very difficult routes, entries without oxygen, solo entries and in two-person teams, but also failures after a barnburner, equipment and organisational problems may become a prove of a sportive nature of this activity. Successes of Jerzy Kukuczka, Wojciech Kurtyka, Krzysztof Wielicki, and also the achievements of Wanda Rutkiewicz, Krystyna Palmowska or Anna Czerwińska, enables us to deem the Polish environment the leading one in the world in the sportive aspect. However it needs to be admitted that it is a very specific sport as it is difficult to compare individual achievements in a reliable manner and any categorical classification should be avoided. In this sport results are not measured with a centimetre or points. There is no public or stadiums. Lionel Terray thought that alpinism differs from other sports only with this that there is no direct confrontation among climbers and the fight with power of nature and own weakness is more important than competition – moreover the fight far away from stadiums and excited crowd (Malanowski 1990). There is a peak with a defined altitude and its conquering means success, but the way to it may be various. The scale of achievement depends on a level of difficulty of a selected route, style of entry and not just the very peak. Though initially it used to be so the changes occurred when the highest peaks had

been conquered. At present it is difficult to talk about great sport successes only in the event of repeating the entry by the route of the first conquerors.

It is confirmed by Aleksander Lwow, who challenges the thesis about competition in himalayism. As a prove he quotes competition between Jerzy Kukuczka and Reinhold Messner in the race to the Crown of the Himalayas. As he observes "the race means competition of equal (theoretically) chances, at maintaining unity of time, external conditions and observing the same rules of the game. That was not the case in the competition of Kukuczka and Messner, so there could be no talk about any race" (Lwow 1990 s.92).

Despite the fact that Poles joined the world alpine movement quite late and the fact that climbing the Tatra Mountains had existed for many years, still a sportive nature of climbing was also questioned here. Such doubts were not shared by the Main Committee of Physical Culture and Tourism granting alpinists tens of medals for „Excellent Sport Achievements". Representatives of climbing sport were also selected in the contest „Sportsman of the Year". In this respect the most eminent Polish himalayist Jerzy Kukuczka was uncompetitive, absolutely best in the history of the Polish himalayism who for conquering all eight-thousand meters peaks was granted many awards and honourable mentions. Despite the fact that in the 70'ies and 80'ies of the 20th century alpinists received awards and mentions, still as Andrzej Zawada claimed, they were not treated as equal with other sportsmen. He thought that an alpinist was still not a sportsman as a representative of the Polish Alpine Association was never invited to the jury of the contest for the best sportsman. In his opinion it was unfair, as chess players who spend hours over the table, do not indicate any physical fitness are considered sportsmen. The difference was only that chess could be scored. For judges it was important if a result could be measured with points, seconds or centimetres (Matuszewska 2003).

In 1988 the International Olympic Committee, sitting during the winter Olympic Games in Calgary granted two himalayists who conquered the Crown of the Himalaya (all 8000m peaks) to Jerzy Kukuczka and Reinhold Messner, Silver Medals of the Olympic Order. Messner refused to accept the honourable mention justifying his gesture with the fact that he considered alpinism a sort of creation and not competition which could be subject of comparison. He though that by accepting the medal he would agree with a sport definition of alpinism. On the other hand Kukuczka accepted the medal as he noticed sport values in professional climbing which he stressed many times: "in alpinism as in chess there is place for a sort of creation and sport competition. If not for that maybe I would have never climbed." (Malanowski 1990 s.76). Still however granting such a medal confirms purely sportive nature of this activity, though the results are immeasurable. Kukuczka also though that there is a difference between an Olympic medal and a medal of the Olympic Order. There was also a great difference in the style in which competing himalayists achieved their success. Kukuczka marked out new difficult routes, and conquered some of the 8000m peaks in winter conditions. And even at the last stage of the competition, when he was aware that he was losing with Messner, the Pole did not resigned of the previously selected route. So the question

arises whose success was greater. Messner realising Kukuczka's success, expressed his congratulations with these words:" You are not the second. You are great." (Malanowski 1990 s.190). And that sentence proves that in the mountains there does not exist any notion: first, second, third.

Moreover Jerzy Kukuczka indicated that himalayism cannot be treated as normal sport as for conquering peaks there are no awards or medals as in other sports. If that was the main purpose of the mountain activity high mountain climbing would have attracted people who liked titles and splendours.

Physical recreation is also called motion or active recreation, mass sport, sport for everyone, active relaxation, mass physical culture. The definition proposed by Wolańska and today used most frequently considers physical recreation „all these activities of motion-sport contents which a man practices for fun during his/her time free of obligations for relaxation, entertainment and development of one's personality." (Wolańska 1971 s.11). So widely understood recreation whose properties are: volition, selflessness and pleasure coming from its practicing (activity property) often including actions of great variety with regard to forms and contents.

So there arises a question regarding a soundness of considering alpinism within the scope of physical activity. Analysing the development of alpinism and a man's actions in the highest mountains, one cannot unambiguously respond to these questions. Thanks to improvement of equipment, development of knowledge on functioning of a human body at high altitudes and in the death zone (over 8000m); the highest mountains have become available to so called tourists. At present we can more openly talk about high mountain tourism, though taking into account weather conditions and threats present at 8000m peaks it is hard to believe it. Organising the first commercial expedition in the 80'ies of the 20th century showed that almost everyone can try himself and face the power of the 8000m peaks. Dick Bass, who conquered the Crown of the Earth that is all the highest peaks of seven continents showed what one can do with a lot of toughness and cash. At present even weakly experienced climbers achieve the peaks of the highest mountains of the world thanks to companies organising commercial expeditions. Little experience of high mountain tourists at the same time represents a huge threat which was proved with the tragedy which occurred on the highest peak of the world on 10 May 1996 (eight climbers from 3 teams at the same time attacking the peak of Mount Everest paid the highest price). Progressing commercialisation of the trips to the highest peaks of the world irretrievably stripped them of magic and romantics and as a consequence the real idea of alpinism and himalayism is questioned. Fortunately not all the climbers follow the new trend.

Summing up

Risk and death are inevitably connected with himalayism and climbing, therefore this activity cannot be treated as a form taken for multiplying health. It is relatively very dangerous which has been proved by death of many experienced world and Polish alpinists, including Andrzej Czoka, Tadeusz Piotrowski,

Wojciech Wróż, Jerzy Kukuczka, Wanda Rutkiewicz, Halina Krüger – Syrokomska, Dobroslawa Miodowicz – Wolf or Piotr Morawski. Many eminent climbers stayed in the Himalayas for ever. Death in the mountains often strips climbing of romantics. It is many times a result of heroic attitude but often it is caused by simple mistakes, lack of professionalism of a himalayist or a bad decision of the very manager of the expedition. And sometimes it is simply a consequence of bad luck. Every person practicing alpinism is however certain that nothing bad can happen to him/her. Alpinists do not agree with death and therefore they appreciate more value and beauty of life. As rightly summed up by Lionel Terray: „alpinist observing all rules of carefulness contained in manuals would be practically sentenced to idleness. Exposing to danger is not the purpose of this game, but it does constitute its part." (Terray 1975 s.61). In himalayism training, experience and modern equipment are important but luck is important above all. A risk of accident and also a loss of life are calculated into practising alpinism and all its kinds. This risk is particularly high in the highest mountains. Statistics, though brutal, represent a source of truth and a warning to next daredevils taking the challenge posed by the mountains.

Taking into account the above described aspects related to mountain activity, himalayism cannot be treated in an unambiguous manner. Its specifics and also all objective and subjective threats cause that the activity is not destined for everyone, and almost all want to take up such challenge. At present thanks to organisation of commercial expeditions it is accessible to more and more people, often with not a very good preparation (technical or endurance) as a real himalayist should. One may even assume the thesis that the activity taken by them is a higher level of high mountain tourism. However they are not of sportive nature, and the purpose is reaching the peak, that means with the simplest route. Unfortunately the era of great successes and golden age of himalayism passed therefore there is a fear that in several years' time no one will dare include alpinism to sport. Whether this happens we will see.

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Interventions of the mountain rescue teams in mountain trekking tourism in selected mountain ranges of Poland

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Abstract

The mountains are a dangerous place. This assumption should be made by every tourist going there. Regardless of natural topography or a level of advancement and knowledge of mountaineering everyone is exposed to similar dangers. The very presence of a man in the mountains constitutes a potential risk to him/her. Mountain areas are characterised with the climate different than on the plains and with frequent changes of the weather. Tourist going to the mountains without experience and appropriate condition may unleash danger upon themselves. A legal security for taking up mountain tourism is among others appointing rescue functions which based on the statutes purposes and legal acts complete their actions in eight groups. Their interventions became the subject of interest of the authors of this work. Using the method of individual cases and analysis of document the thesis on a changeable manner of operation of rescue groups depending on natural topography was verified. Analysis of the research material confirmed the above mentioned thesis. Differences relate not only to a kind of a rescue intervention, but also its duration or used means of evacuation. The discussed subject seems to be up-to-date in the light of the systematically increasing statistics indicating accidents in the mountains.

Introduction

Mountain trekking tourism is a special form of motion activity. Due to the area in which it is taken up it gives the participants rich varied and unrepeatable impressions both aesthetical and cognitive. Characterised with many important values, including mainly health and social ones, it shapes in us not only sensitivity to beauty but above all our character. Being in the mountains a man has to rely on himself, so he may "try himself" in confrontation with nature which is both beautiful and dangerous and staying in the mountains often helps overcome own barriers (Zarzycki 2000).

Unfortunately a man who appears in the mountain environment becomes a potential victim of elements characteristic for this type of places or quite frequently his own ignorance or simply excessive confidence in one's skills and experience. Amateurs of mountain grapples are supported then with modern equipment, aid of professionals (guides, mountain rescuers) and experience obtained through years. Development of mountain craft and more and more developed techniques of moving in the mountain area aim at minimising accident rate when practicing tourism. However it happens that even experienced tourists do not predict a threat and need help of another person.

Issues related to the safety of persons practicing mountain tourism and more and more frequently raised by the specialists dealing with this field. Organised symposia, conferences, workshops and as a result their developments aim at improving safety of well-wishers of mountain disciplines to the maximum. (Biedrzycki i in. 2004). Therefore legal regulations providing for issues of safety in the mountains have been implemented in Poland. They also indicate units responsible for safety in the Polish mountains. The most important legal acts are:

- Act on tourist services dated 29 August 1997 (uniform text Journal of Laws of 2001 No 55, item. 578 with amendments)
- Act on physical culture dated 18 January of 1996 (uniform text Journal of Laws of 2001 No 81, item. 5889, no. 102 item 1115 with amendments)
- Act on education system dated 7 September 1991 ((uniform text Journal of Laws of 2004 No 256, item. 2572 with amendments)
- The decree of the Minister of Internal Affairs and Administration dated 12 November 2002 on detailed scope of obligations and specialist authorities of rescue organisations (Journal of Laws No 193, item. 1624)
- The Decree of the Council of Ministers dated 6 May 1997 on determination of conditions of safety of persons staying in the mountains, swimming, bathing and practicing water sports (Journal of Laws No. 57, item 358)

The above mentioned legal acts sanction activity of rescue organisations, and the Mountain Volunteer Rescue Service and the Tatra Volunteer Rescue Service are the units responsible for safety in the mountain areas of the Republic of Poland. Since 1990 the Mountain Volunteer Rescue Service and the Tatra Volunteer Rescue Service (GOPR and TOPR respectively) constitute separate associations. TOPR is responsible for rescue in the area of the Polish part of the Tatra Mountains, whereas the remaining Polish mountains are under care of seven regional groups of GOPR i.e. Beskidy, Jura, Karkonosze, Krynica, Podhale and Walbrzych-Klodzko groups.

In the subject literature it is possible to find many items describing the history of activity of mountain rescue service in Poland (Jonak 2002, Quirini-Poplawski 2007). However there lacks a unified characteristics of individual mountain ranges with regard to threats to a tourist, and also items on accident rate and rescue interventions in the Polish mountains. The Tatra mountains seem to be an exception as they were a subject of interest of many researchers due to their

high mountain nature and the activity of rescue service already since 1909 (Żulawski 1958, Pawlowski 1973, Maciejewski 1983, Jagiello 2002, Marasek 2007). The items concentrated on describing toils of work of mountain rescuers at the same time showing nature of accidents. In the Sudety and Bieszczady accidents were described in the form of internal publications of GOPR or as memoirs of mountain rescuers (Jonak 2002, Marszalek 2006).

All the above mentioned items treated on accidents in the mountains which occurred when practicing various forms of activity. An attempt to compare the activity of rescue service in three mountain ranges with a different characteristics of the area for one form that is for trekking tourism seem to be the first analysis of this type.

Purpose of the compilation

A detailed analysis of the statutory actions of selected rescue groups over the recent years is as a result to lead to answering the question whether, a if so in what manner, natural topography of the mountains determines a way of operating of rescue services in the analysed mountains.

Materials and research methods

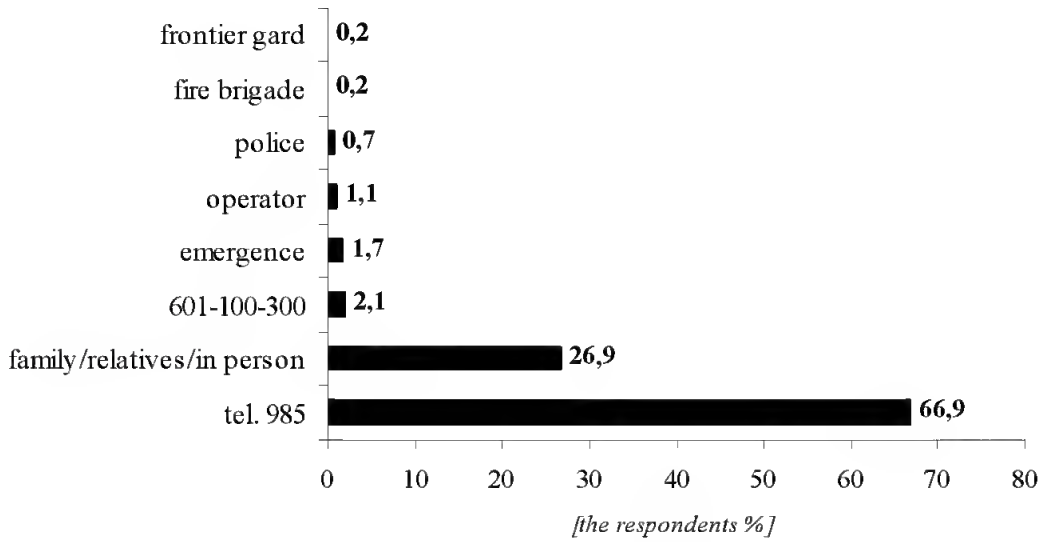
The presented research material represents an integral part of the research project titled „Contemporary mountain trekking tourism in Poland and its selected considerations" within the scope of determination of a level of knowledge of mountain tourists on safety in the mountains. An initial condition to verification of this thesis is performing an analysis of accident rate in the mountains together with the description of interventions of rescue groups. The material for the research is the documentation regarding rescue interventions in the Central and Eastern Sudety, the Bieszczady and the Tatra Mountains in the years 1994, 2000 and 2007. The mountain ranges were selected mainly due to varied nature of the mountain area. In total 807 accident charts were verified, out of which the following information was selected: type of intervention (intervention in field, intervention in a shelter, intervention in a rescue station, expedition), a person notifying an accident (ski lift operator, police, emergency, fire brigade, frontier guard, GOPR alarm numbers 985, 601-100-300, in person or by an expedition partner), nature of search (finding, not finding, by phone, false alarm) death of a casualty or not (before arrival, during rescue), transportation means used by rescuers (alpine cart, French stretcher, toboggan, Canadian board, orthopaedic board, others), evacuation means used by rescuers (car, snow scooter, four-wheel vehicle, snow tractor, cable car, helicopter and others), transfer of a casualty after a rescue action (medical aid, HEMS, carer, others) duration of a rescue action and place of accident.

The material based on the historical-comparative method of individual cases, and analysis of the documents was collected in September 2008 in the Central Station of the Regional Walbrzych-Klodzko GOPR group, the central Station of Regional Bieszczady GOPR group and central Station of the Tatra Volunteer Rescue Service and the Central Station.

The research group based on the analysed accident charts represented women more frequently (59,5%). In reference to age one may deem that mountain trekking tourism is multi-generational. The biggest group was represented by young people up to 24 years (42,8%). The casualties in the section of age from 25 – 44 and 45 – 64 years were reported respectively 29,4 and 17,4%. Elderly people over 65 years who had accidents were a bit above 4%.

Analysis of the research

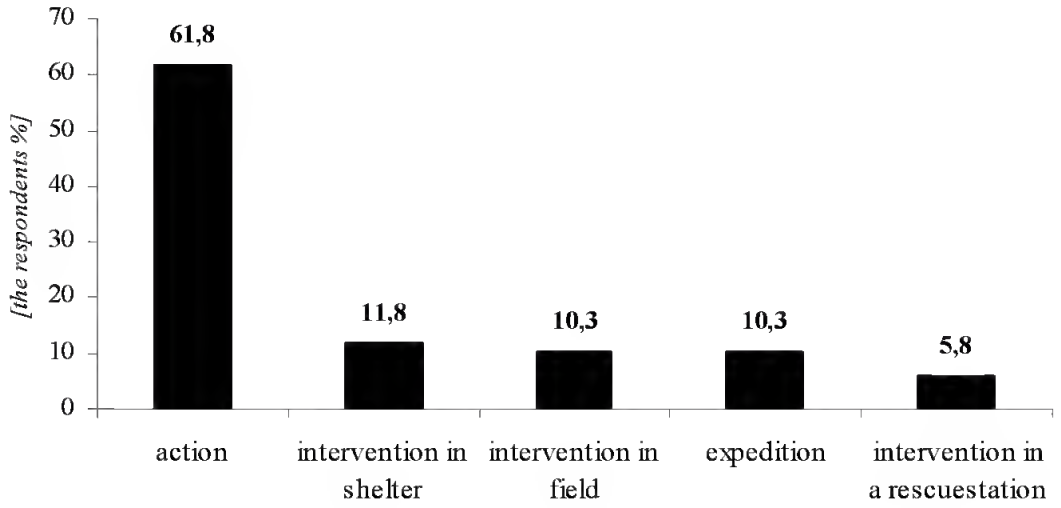
Each unfortunate event in the Polish mountains which requires intervention of rescuers has to be first of all notified. An accident notification is done most often by phone. Majority (66,9%) of the accidents regarding trekking tourism is notified to the Central Stations of Regional GOPR groups or TOPR group thanks to an alarm number 985 or on a fixed line phone numbers of a given central station. The second most numerous group are personal notifications of an accident to a rescuer on duty in a given emergency point in the mountains by a casualty himself/herself, his/her companion or an encountered tourist. This type of notification happens in over one fourth cases (26,9%). The remaining ways (in total circa 10% of cases) are notifications to a mobile alarm number 601-100-300 or through the information from other services (emergency, fire brigade, police, and frontier guard)) (drawing 1).



Drawing 1. Ways of notifying regional groups (N=807)

The most frequently taken rescue intervention, from among the distinguished ones in the Polish rescue system (actions, expeditions and interventions) were rescue actions (drawing 2). This type of intervention represents 61,8% of all cases. The remaining almost 30% of interventions represent almost equally: interventions in shelters (11,8%), interventions in field (10,3%) and rescue expeditions (10,3%). Interventions in a rescue station, due to a character of the

analysed form of tourism, represent the smallest group of interventions and that was over 5% of cases.

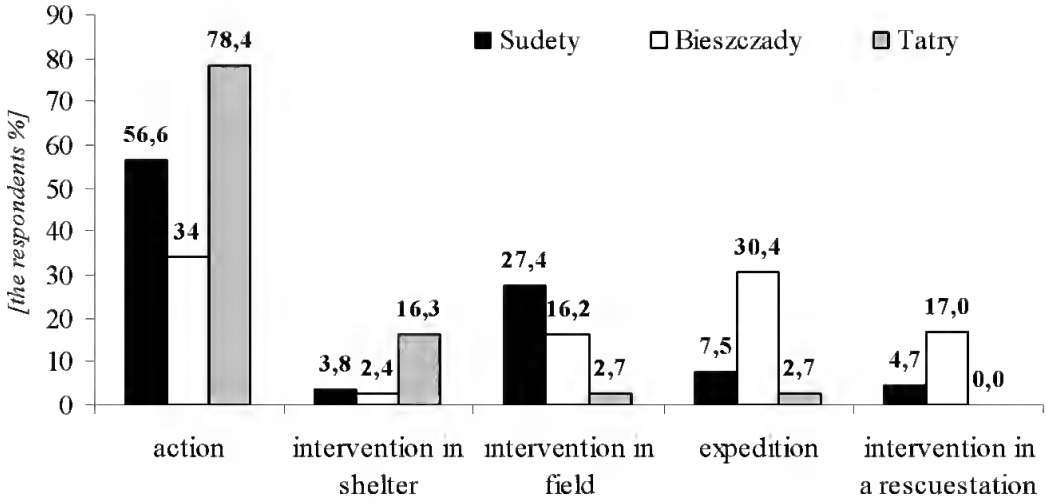


Drawing 2. Type of intervention in the analysed research material (N=807)

Analysing in detail the work of GOPR and TOPR service existing differences in types of rescue interventions depending on mountain groups were searched (drawing 3).

Regardless of the researched mountain region it was observed that rescue actions were taken most frequently. According to the expectations, the Tatra Mountains with its natural topography dominate in the taken rescue actions. (78,4%). Not much less interventions of this type, significantly over a half (56,6%), were recorded in Central and Eastern Sudety. The lowest percentage of rescue actions is recorded in the Bieszczady representing over 1/3 of all the cases. What is important in the case of this region the remaining interventions represent a quite important element of helping casualties. Interventions in shelter are completed in over 30% of all the actins which is the highest value in comparison with the other researched region. Similarly with the interventions taken in a rescue station. In the Bieszczady it is 17%, and in the Sudety5%, whereas in the Tatra Mountains this type of intervention has not been recorded. In the event of the Sudety and the Bieszczady interventions in field are taken significantly more often (27,4 and 16,2% respectively) than in the Tatra Mountains (2,7%). It is worth stressing that interventions in field in the Sudety represent the second form of aid to mountain trekking tourists with regard to a number.

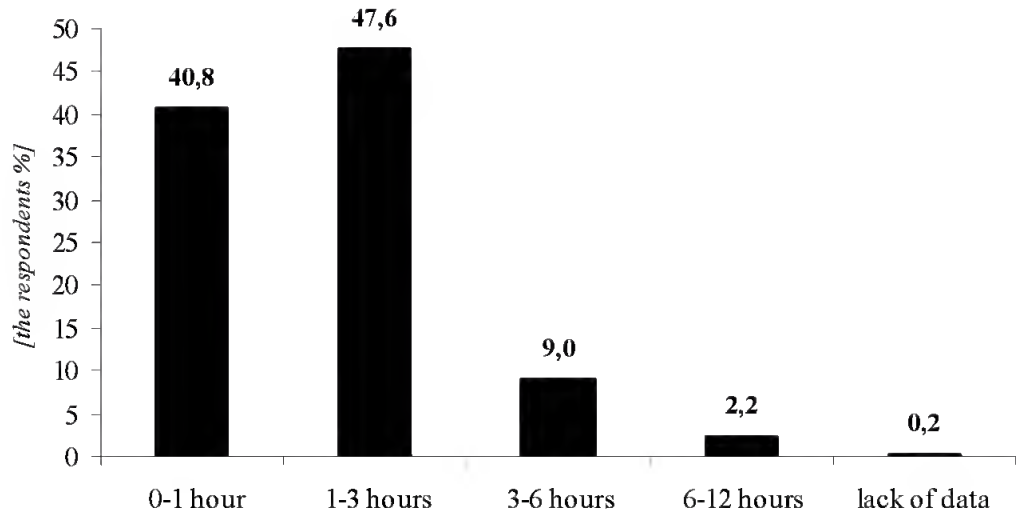
Expeditions a so the most advanced form of rescue interventions are taken mainly in the Tatra Mountains. In the remaining analysed regions these interventions had a marginal nature and did not exceed the level of 4%.



Drawing 3. Types of rescue interventions in the analysed mountains (N=807)

The next factor which was analysed making the research of accident rate in the mountains was the duration of a rescue action. Maximally shortened time of reaching to a casualty, efficient first aid and efficient evacuation from a dangerous area, these are the most important factors deciding about health and life of a casualty. Duration of a rescue intervention is counted from the moment of notifying about an accident. It covers organising appropriate form of help, arriving of rescuers to a casualty, giving him/her necessary medical aid, evacuation of a casualty to a safe place or transferring him/her to other rescue services. An intervention is deemed ended at the moment of safe return of rescuers to a place of duty and preparation of rescue and medical equipment for the next intervention.

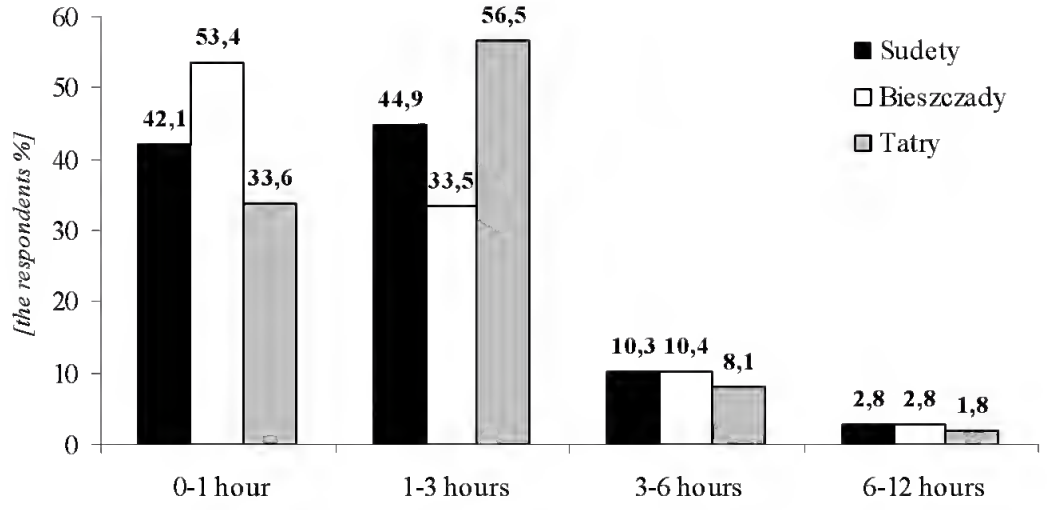
Thanks to an efficient operation of mountain rescuers, a significant majority of interventions (88,4%) is closed in up to three hours, out of which 40,8% before the elapse of the first hour. However it should be stressed that the key factor in analysing action duration is time of arriving to a casualty, and that is dependent on natural topography in the given mountains. Accidents which are connected with a difficult evacuation or looking for a casualty significantly lengthen action duration. Then interventions are lengthened even up to over ten hours, out of which there were 9% of interventions up to six hours, and only 2,2% of intervention over 6 hours. (drawing 4).



Drawing 4. Duration of a rescue action (N=807)

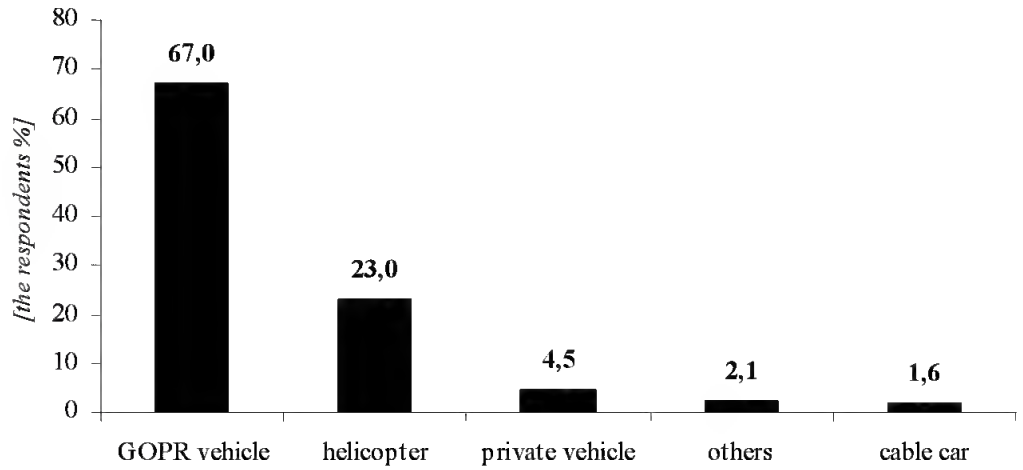
Analysing duration of a rescue intervention with regard to the researched mountain regions one may observe certain differences (drawing 5). In the Sudety range it is similar to the general trend described above. The most numerous are rescue actions lasting from one to three hours (44,9%). A number of interventions ended within one hour is also similar (42,1%). 10,3% of cases were recorded within the range of actions lasting from three to six hours, and over six hours only 3%. A different situation was observed in the Bieszczady. Over half of rescue actions (53,4%) was ended before the elapse of one hour. Over one third of interventions (33,5%) takes the rescuers from one to three hours (33,5%). The remaining ones from three to six hours and over six hours represent 10,4 and 2,8% cases respectively.

In the Tatra mountains, mainly due to the natural topography one may observe significantly more interventions with an average duration. Over half of them (56,5%) ends before the elapse of three hours. Over one third (33,5%) is closed before the elapse of one hour. Interventions within the range from three to six hours represent 8,1% cases, and over six hours 1,8%.



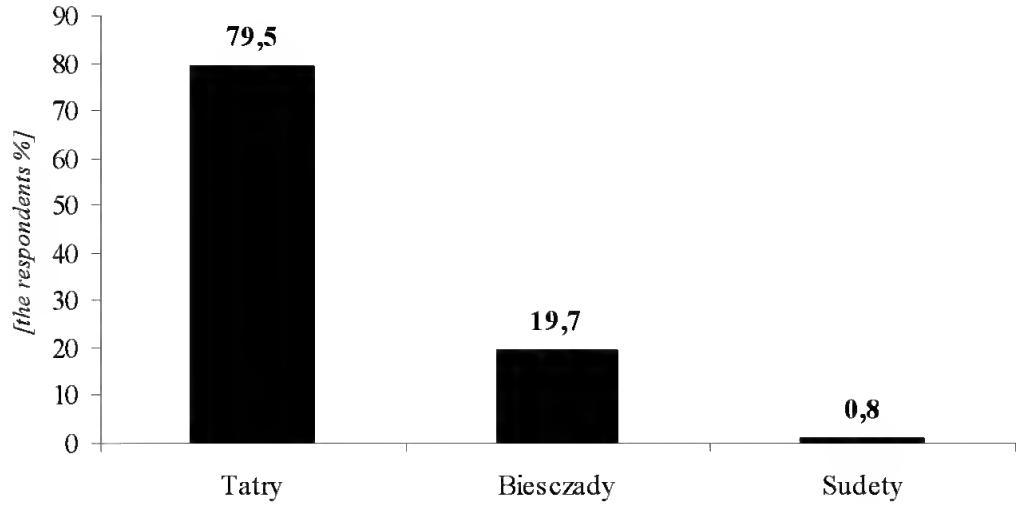
Drawing 5. Duration of a rescue intervention in reference to the researched mountains (N=807)

Numerous interventions in the Polish mountains (71%) require quick transport of a casualty to a safe place, or to a place where it is possible to transfer him/her to other rescue services. For this reason rescuers use so called evacuation means including mechanical vehicles such as off road car, a four-wheel vehicle, snow scooter, helicopter or a cable car (the Tatra mountains). Land vehicles are used most often, with which over 2/3 (67%) of accidents are handled. However 23% of casualties are evacuated from a dangerous area with a helicopter. The remaining evacuation means are used sporadically (in total circa 8%) (drawing 6).



Drawing 6. Type of applied evacuations during the analysed interventions (N=573)

The hardest accidents or these which occurred in the most difficult area require use of a helicopter for evacuation of a casualty. The Tatra Volunteer Rescue Service having at its disposal a helicopter „Sokół" leads in the number of interventions with use of this transportation means (79,5% of flights in all the analysed three mountain ranges). In the remaining Polish mountains (including the Central and eastern Sudety and the Bieszczady) Polish Medical Air Rescue helicopters handle cases if needed (under the agreement concluded between the Mountain Volunteer Rescue Service (GOPR) and the Polish Medical Air Rescue in 2006). In the Bieszczady there were 19,7% of the researched cases, whereas use of a helicopter to handle accidents in trekking tourism in the Central and Eastern Sudety are single cases (0,8%) (drawing7).



Drawing 7. Use of a helicopter in rescue interventions (N=132)

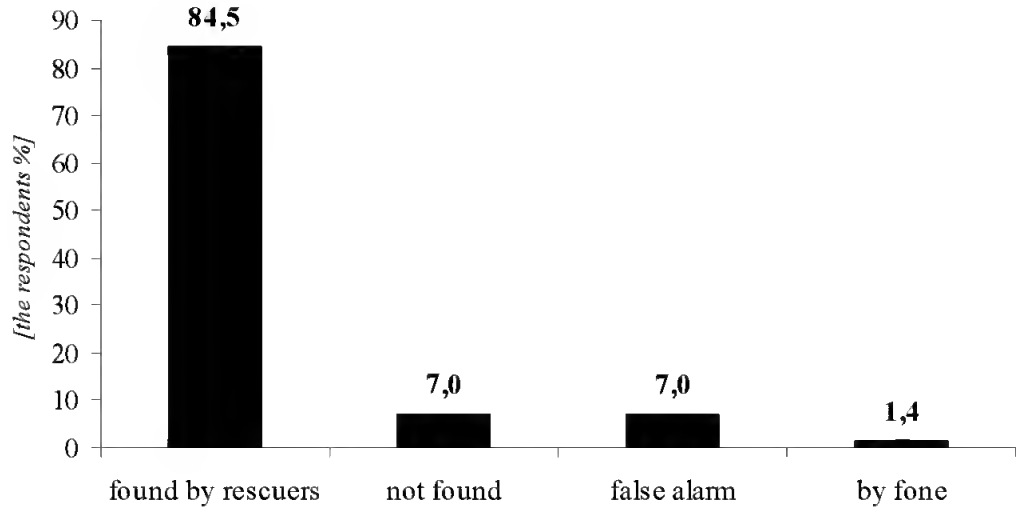
Suitability of a helicopter for handling accidents in the mountains is unquestionable and it is worth stressing that use of this transport means significantly speeds up a rescue intervention.

In the event of rescue actions without use of a helicopter the highest number of interventions takes the mountain service from one to three hours (50,9%). The interventions ending before the elapse of the first hour represent a bit over 37,5%, whereas three to six hours 9,4%. 2,2 interventions lasting over six hours were recorded.

Comparing duration of evacuation with use of a helicopter with other transportation means one may notice a significant difference – 58,3% of the interventions ended within one hour. The second time range (from one to three hours) relates to almost half a smaller group of casualties (31,8%). Interventions lasting from three to six hours are rare and relate to 7,6 and 2,3% cases.

It's also worth mentioning participation of rescuers in search actions, which represent almost 10% of all the interventions. These are usually complicated

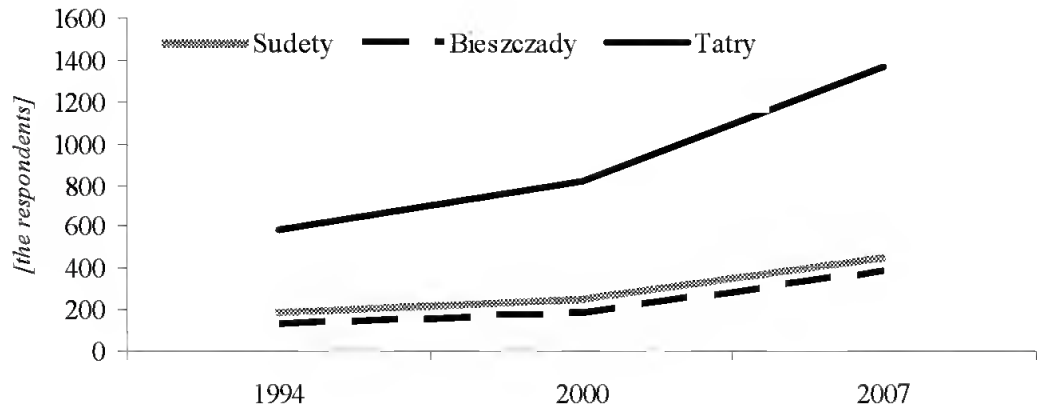
logistically expeditions involving many rescuers, requiring use of a lot of equipment and co-operation with other services. A happy ending of searches relates to 84,5% of interventions (drawing 8).



Drawing 8. Efficiency of search actions (N=71)

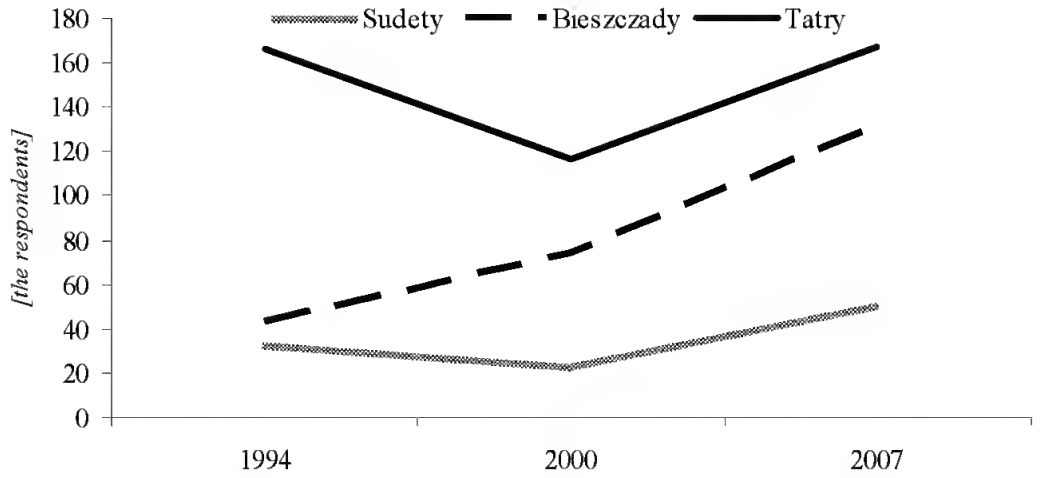
It happens that not all the interventions of mountain rescuers are ended successfully. Accidents during trekking tourism, considered a safe form of moving in the mountain area in 2% of cases end with a death of a casualty.

Finally it should be stressed that a number of accidents in the Polish mountains (during practicing mountain tourism in various forms) is continuously increasing. In the analysed three periods (1994, 2000, 2007) a number of unfortunate events requiring intervention of mountain rescuers increased in all the mountain ranges almost twice. (drawing 9).



Drawing 9. General tendency of accident rate in the Polish mountains (N=4366)

The structure of a number of accidents during practicing trekking tourism increases slightly in the Central and Eastern Sudety, it grows very systematically in the Bieszczady, whereas in the Tatra Mountains after a significantly decreased number of accidents in 2000, it is kept at a similar fixed level (drawing 10).



Drawing 10. Tendency of a number of accidents when practising trekking tourism in individual years (N=807)

Summing up and conclusions

Mountain tourism thanks to its universal values is at present a desired form of motion activity for a man. Its basic advantages noticed by a significant part of the Polish society are expressed directly by taking mountain treks by them. Unfortunately some of the tourists are not prepared for negotiating mountain routes. Mistakes in equipment preparation, lack of excessive confidence in one's knowledge lead as a result to creation of dangerous situations whose final effect may be tragic. Minimising this threat is carried out in various ways, out of which the most important way is the activity of mountain rescuers.

In the presented material only the fragments of the research is presented in order to show a nature of rescue interventions depending on a mountain area. The analysis of the research material enabled us to make several observations.

Mountain rescuers are most often notified about an accident by phone thanks to an alarm number 985, which connects a casualty with the nearest station of a regional group of GOPR or TOPR. However one should clearly stress that there is no specific data on so called indirect notification which tourists often make via the alarm telephone number 112, and which may be considered most popular among tourists.

The most frequent type of intervention in all the analysed mountains is a rescue action, so intervention in which at least one rescue team (that is at least two rescuers) is involved which is to evacuate a casualty from a dangerous area with use of rescue equipment. However it should be noted that, nature of the mountains

determines intervention to a certain degree. In the Central and Eastern Sudety interventions of rescuers in field are frequent (slight injuries and help of a rescuer with use of basic means of first aid), whereas in the Bieszczady there are many interventions in shelters (notification of a casualty in person). This fully justifies selection of shelters as a place of duty of rescuers. In the Tatra Mountains a percentage of rescue expeditions is quite high mainly due to a difficult natural topography, and as a result complicated rescue and search activities.

Duration of interventions in the Polish mountains is varied and certainly depending on natural topography. The Central and eastern Sudety and the Tara Mountains force interventions at the level up to three hours, whereas in the Bieszczady they are often closed within one hour.

Evacuation of tourists in all the analysed mountain groups is most often carried out with use of mechanical means: including an off road car, quad or scooter. Interventions with use of a helicopter are unfortunately done mainly is the Tatra Mountains, and we know its use shortens duration of a rescue intervention in the mountains on average by half. It seems that it is necessary to create a mechanism which would support all the rescue groups in Poland with this evacuation mean.

Efficiency of mountain rescuers in search actions is very high. A decisive majority of casualties (84,5%) is found: over half of the search actions are carried out in the Tatra Mountains.

Accidents during practicing trekking tourism represent a small part of all the unfortunate events in the mountains requiring intervention of the rescuers of GOPR and TOPR. Their number in the last 15 years has significantly increased in the Bieszczady. An essentially lower increase was recorded in the Central and Eastern Sudety, and in the Tatra Mountains the accident rate in the researched period was maintained at a fixed level. In the context of the above it may be stated that a real need is further education of the Polish society on safe practicing of trekking tourism in the mountains. One should consider implementation of an organised system of training on safety of taking up various form of tourism through educational actions, instructing films or leaflets handed to tourists arriving in the mountains. It also seems that so efficiently operating rescue teams should have more support from the authorities to be able to complete their statutory purposes in full.

To answer the question from the initial part of this compilation one should state clearly that nature of a mountain area does determine a manner of operation of rescue services in the analysed areas of the Polish mountains that is in the Tatra Mountains, the Bieszczady and the central and Eastern Sudety.

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